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GASTRIC CANCER*

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The problem of gastric cancer, like many other problems facing the medical profession today, is a challenging one. The majority of all patients who have a malignant lesion of the stomach die of the disease regardless of the form of therapy employed. This is as true today as it was seventy-two years ago, when Billroth[1] performed the first successful partial gastrectomy. Although much progress has been made, just how much has been accomplished and how may the results be improved?

Eerkson, Walters, Gray and Priestley[2] made a survey of the patients with gastric cancer who were treated surgically at the Mayo Clinic from 1907 through 1949. During this time, operations for malignant neoplasms of the stomach were performed in 9,620 cases, and we have obtained follow-up data in 99.3 per cent of these cases.

It is of interest to study the hospital mortality rate for resection only, as all other procedures offer no chance of cure. This can be done most clearly by studying the group of patients who were treated by gastric resection (Fig. 1). In plotting the hospital mortality rate for the successive years, they began with the cases grouped for the period from 1907 through 1937, because no downward trend of mortality was discernible in these years. In the period studied

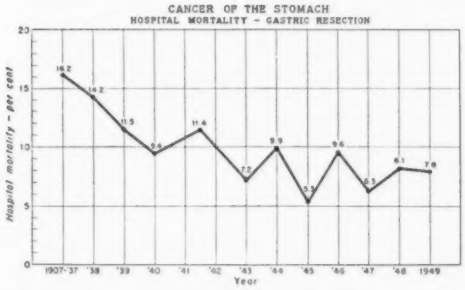

Fig. 1—Trend of hospital mortality rates for gastric resection.

since 1937, there has been a definite decline of mortality, with an appearance of stabilization at a level of about 8 per cent, a figure half of that characterizing the period prior to that year. One should be very cautious in attributing the improvement to one or two things, such as earlier diagnosis, improved preoperative and postoperative care, antibiotics, improved surgical technique and modern anesthesia. It is actually due to teamwork and the application of more recently learned facts in all fields of medicine.

Figure 2 shows the survival curves for

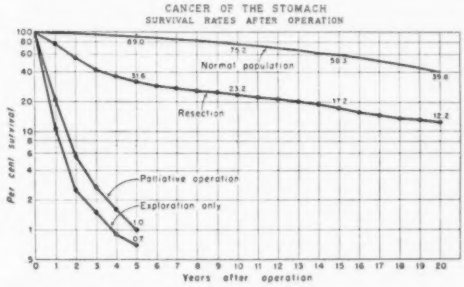

Fig. 2—Survival rates in successive years after operation.

the 3 main operative groups — resection, palliative operation and exploration—and

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for comparison with these a survival curve of the normal population.

The five-year survival after resection is seen to be 31.6 per cent and almost all the patients in the group who underwent palliative operation and exploration only have died. It is interesting to note that after seven or eight years the curve representing patients who have undergone resection parallels the curve of the normal population. In 2,607 (58.9 per cent) of the 4,429 cases in which resection was performed, metastasis had occurred before the operation was performed; in the remaining 1,822 cases (41.1 per cent), the operation did not disclose any evidence of metastasis. Figure 3 shows the survival curves for these 2 groups. The five-year survival rate for the group without metastasis was 48.5 per cent; whereas for the group with metastasis it was 18.6 per cent. When metastasis is present, it is reasonable to believe that the cancers either have grown very rapidly or that their recognition has been delayed. At any rate, the cases in which metastasis is present offer a much poorer prognosis and are evidence pointing to the importance of early diagnosis and treatment.

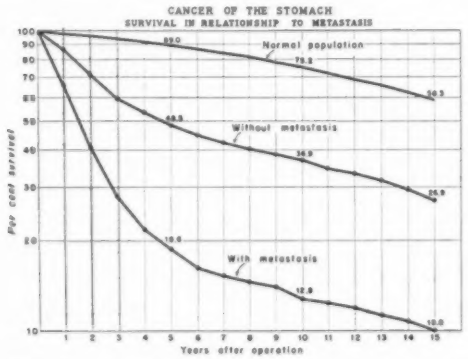

Fig. 3— Survival rates of patients who underwent gastric resection, for those with and without metastasis.

What I have been reviewing to this point is the total experience of the clinic from 1907 through 1949. That is, the results depicted are the average results for the entire period. In an effort to determine whether there was any change in the outlook for the patient with gastric cancer in this period, Berkson, Walters, Gray and Priestley took two parts of the experience to examine: (1) that of the ten-year period, 1907-1916, and (2) that of the ten-year period, 1940-1949. For the cases in which resection was performed, the survival curves of these two series are compared in figure 4. At the five-year point, the survival rate in the recent period was 35 per cent; whereas it was 29 per cent in the earlier period. This is a difference of 6 survivors per hundred, and a relative improvement of 20 per cent.

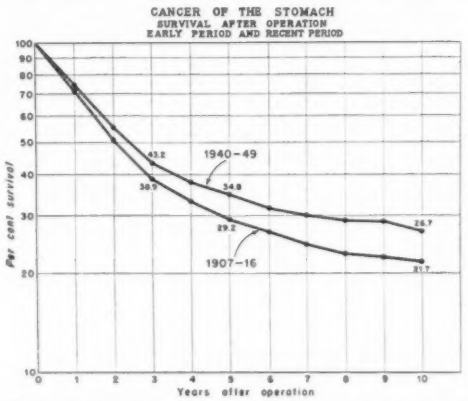

Fig. 4—Survival rates of patients who underwent gastric resection, in 1940-1949 as compared with 1907-1916.

The survival rate following resection is not the only improvement in outlook. One must also examine the operability rate, resectability rate and hospital mortality rate. In all of these, there has been improvement (see Table 1).

TABLE 1
STATISTICAL MEASURES OF IMPROVEMENT OF OUTLOOK FOR PATIENTS HAVING CANCER OF THE STOMACH

	1907 to 1916	1940 to 1949	IMPROVEMENT %*
Operability rate	60	80	33
Resectability rate	37	55	48
Hospital mortality rate	16	8	100
Three-year survival rate	39	43	10
Five-year survival rate	29	35	20

*Based on lower of the two figures. All figures given to nearest whole per cent; in the calculations that follow, derived from these, they are carried out to an additional decimal.

What these improvements, taken together, mean with respect to the outlook of pa-

tients with gastric cancer as they come to the physician is shown in Figure 5, which traces 100 patients from the time of diagnosis of cancer of the stomach to five years later. In the early period, of 100 patients with a diagnosis of a gastric malignant lesion, only 5 could be expected to be living five years later; in the later period, the expected number living five years after diagnosis has increased to 14. This is an improvement of only 9 persons per 100, but even so, the change represents an improvement of 180 per cent.

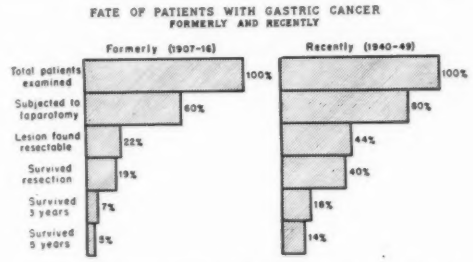

Fig. 5—Improvement of outlook of patients having gastric cancer in 1940-1949 as compared with 1907-1916.

As seen in Figure 6, between the time the diagnosis of cancer is first made and five years later, 86 of 100 patients are lost. Let us analyze the losses as shown in figure 6. Twenty of the 86 are lost because the lesion is found already inoperable when the patients are first examined; 36 more are lost when, at laparotomy, it is found that the lesion is not resectable. Thus, the loss of 56 of the 86 (65 per cent) is due to the patient's arriving too late for surgical treatment. The remaining 30 patients can be considered the surgical loss; 4 of these represent hospital deaths and 26 represent deaths during the subsequent five years. Perhaps improvement in surgical management and technique can decrease the loss represented by these 30. Supposing the 56 patients who had lesions not amenable to surgical treatment were to present themselves in a resectable state, there would be 18 more survivors added to the present 14, which would more than double the number salvaged from the original 100.

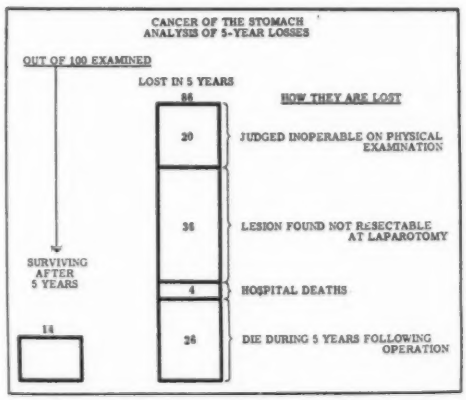

Fig. 6—Analysis of five-year losses from cancer of the stomach.

I now have shown how well the problem is being solved. I next shall consider how the result may be improved.

There is only one treatment for cancer of the stomach: early excision. There was a time when the high mortality of operations for gastric cancer discouraged patients and physicians. Today, extensive operation for cancer may be undertaken by experienced surgeons with a reasonably low mortality. Moreover, surgeons are recognizing the necessity of doing better operations. In excision of the lesion we have found that from 3 to 5 cm. beyond the area of extension of the lesion, as indicated by immediate microscopic examination, is a sufficient distance to carry the resection. Larger amounts of duodenum are being removed since Dockerty and other investigators demonstrated that although the pylorus acts as a barrier, in most cases, to extension of the carcinoma, it does not do so in all. Consequently, in cases in which a malignant lesion extends down to the pylorus, it is now our custom to excise as much duodenum as possible and yet leave enough for a satisfactory closure of the duodenal stump.

Statistical data[3] from the files of the Mayo Clinic have shown that, if an adequate amount of stomach uninvolved by a carcinomatous process is removed beyond the lesion, recurrences are usually not in the remaining part of the stomach but in the liver or pancreas or retroperitoneal, lymphatic or periaortic regions. Hence, total gastrectomy would be indicated only in

those cases in which the resection could not be carried well beyond the outside extension of the malignant growth. In spite of improvements, the risk of total gastrectomy in most hands will average twice that of subtotal gastrectomy. Thus, because of lack of proof of its benefits over those of subtotal gastrectomy in cases in which the lesions are resectable, we continue to believe that subtotal gastrectomy will produce as good, if not better, results in properly selected cases, at a much lower risk.

No operation for the cure of gastric cancer, however, carefully planned and skillfully performed, can be successful unless the lymphatics draining the area involved are dealt with in the most thorough manner. Therefore, a knowledge of the lymphatic system of the stomach is of vital importance. Figure 7 shows the lymphatic

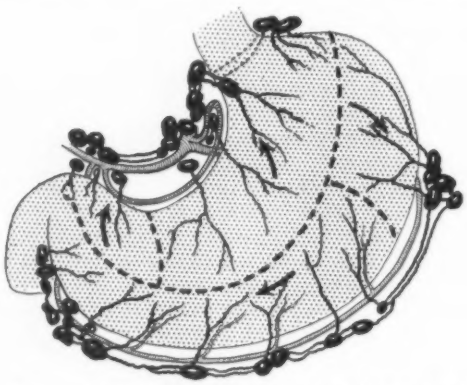

Fig. 7—Lymphatic drainage area of the stomach.

drainage area of the stomach. It is obvious from this illustration that complete excision of the gastrocolic omentum, the gastrohepatic omentum, and the spleen is necessary to remove the potential lymphatic drainage areas of the stomach. Figure 8 shows the dissection in the conventional resection for gastric cancer. The widespread lymphatic drainage areas of the stomach are apparent. The removal of the gastrohepatic omentum up to the inferior margin of the liver, removal of the lesser curvature of the stomach, removal of lymph nodes along the common bile duct and hepatic artery, splenic artery, celiac axis and superior border of the pancreas are mandatory. Removal of

Fig. 8—Dissection in the conventional resection for gastric cancer.

the gastrocolic omentum, the nodes in the pyloric area and a generous portion of the duodenum must be done regularly. Removal of the spleen allows removal of the lymph nodes in the gastrosplenic omentum.

Moreover, in cases of fixed lesions, most surgeons are now recognizing the importance of removing the portion of the organs to which fixation has occurred, whether that organ be liver, spleen, pancreas, transverse mesocolon or colon. Our experience at the clinic has shown that this extension of the operative procedure beyond the conventional limits of gastric resection adds little to the operative risk.

If we surgeons could reduce the mortality rate to zero, we would not increase the salvage rate to any great extent. The kernel of the problem of increasing the five-year survival rate in cases of gastric cancer, therefore, lies in getting more patients to the surgeon while the growth is resectable and before metastasis occurs. The real hope of improvement lies in the further development of diagnostic skills and in general education. The patient must be disturbed enough by the initial symptoms to cause him to consult his family physician for advice. If the physician, when once consulted, does not suspect that all symptoms referable to the stomach may be due to cancer, especially if the patient is more than 45 years of age, much time may be lost before

an accurate diagnosis is made. Let us suppose that the patient is fortunate enough to see a physician who will immediately determine the status of his stomach and has available a roentgenologist who is expert in detecting the presence of small gastric lesions. Even then, much time may be lost because of a casual attitude toward known precursors of cancer of the stomach.

Adenomatous gastric polyps seen unquestionably to be a precursor of gastric cancer. In a recent study of 185 cases of pathologically verified adenomatous gastric polyps, Cromer, Comfort and Eutt[4] found that the polyps were malignant in 35 (19 per cent) of the 185 cases. Gastric polyps require removal.

Regardless of opinions about the change of a benign ulcer to a malignant one, it is clearly established that about 10 per cent of gastric ulcers are malignant. A study of 620 ulcerating lesions of the stomach by Alvarez and MacCarty[5] revealed some interesting facts regarding the relationship of the size of the ulcer to the incidence of malignancy in the ulcers. Figure 9 emphasizes the relationship. On the basis of size alone, a gastric ulcer the size of a dime (1.8 cm.) has a 6 per cent chance of being cancer. Of ulcers the size of a quarter (2.4 cm.), 25 per cent will be malignant. Of those the size of a half dollar (3 cm.), 60 per cent will be malignant. An ulcer the size of a silver dollar (3.7 cm.) has an 80 per cent possibility of being malignant. All ulcers larger than a silver dollar are usually malignant.

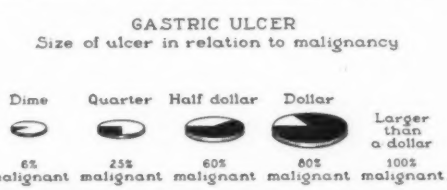

Fig. 9—Relationship of size of gastric ulcers to the incidence of malignancy of the ulcers.

The possibility of malignancy is a real one in cases of ulcer of the stomach. No test is available that will distinguish a benign and malignant ulcer in every instance. With our present knowledge, an aggressive medical trial may be allowed for a small ulcer of doubtful malignancy for a period of three weeks. If, at the end of this time, the ulcer has not healed, one must resort to biopsy. This requires a surgical exploration with excision of the ulcer for immediate microscopic examination. The mortality rate for this procedure is approximately 1 per cent. The mortality rate for medical management if the ulcer if malignant, is 100 per cent.

Enthusiastic advocates of screening methods as a means of getting the cancer patient into the hands of the physician for earlier diagnosis consider roentgenologic examination to be the method of choice. However, we cannot examine the stomach of every individual roentgenologically. We could, however, use this method in the examination of certain segments of the population; particularly, we might choose those with anacidity, pernicious anemia and atrophic gastritis. It is estimated that the incidence of gastric cancer in persons who are more than 40 years of age and have anacidity is eight to ten times greater than in the general population, and that about 50 per cent of gastric cancers should develop in this group. It is proposed that members of this group undergo frequent roentgenologic examination for the early detection of gastric cancer.[6]

Smaller groups for screening are those with pernicious anemia and atrophic gastritis.[7-11] Evidence has been presented to show that the incidence of gastric cancer and gastric polyps is greater among patients with pernicious anemia than it is in the average group of cases in which necropsy is performed. That the patient with atrophic gastritis, but without pernicious anemia, is more likely to have gastric cancer is not well supported, but the presence of anacidity in many patients with gastric carcinoma before the malignancy develops,[12] and the frequent occurrence of atrophic gastritis in association with gastric cancer,[13-15] is evidence to support such a belief. The need for careful periodic examination in this group of patients seems clear.

Additional methods of diagnosis are being sought. Accurate gastroscopy is rela-

tively new, and is a definite aid, but there are few men competent in its use. Biopsy with the aid of the gastroscope has not been of much help thus far.[16] Cytologic study of gastric washings has not been satisfactory to date.[17-19] However, examination of smears of cardiac lesions, obtained through the esophagoscope, has yielded valuable information.[20] A good technique for detecting exfoliated malignant cells in gastric carcinoma may be the "screening test" we are seeking. This aspect deserves investigating to its fullest possibilities.

Cancer detection clinics are serving a very useful purpose, chiefly in education of the public and the profession. Actually, a high degree of suspicion of the presence of gastric cancer on the part of every physician would accomplish far more.

COMMENT

The over-all picture of gastric cancer is grim. Nevertheless, one must not take a negative attitude toward the problem. Improvement has been made in operability and resectability rates, hospital mortality rates, and survival rates. The scope of operative treatment is increasing, and the concept of the "radical" attack on gastric cancer is being developed. We have arrived at a point in our progress where we should begin to save a much greater number of victims of gastric cancer. Greater improvement must be made. In pointing out the internist's responsibility, Comfort[21] has taken a positive attitude toward the problem, and it certainly applies to all of us. We must cooperate in educating the public and the medical profession, particularly as to the need for early diagnosis and the hopefulness of surgical treatment. We must co-operate in getting the patient with a gastric lesion, be it cancer, benign tumor, ulcer or polyp, into the hands of the skilled surgeon early in the course of the disease. We must be continuously alert to the possibility of the development of gastric cancer in the patient entrusted to our care, and we must be willing to use modern methods of diagnosis for its detection. Moreover, we must support research into the basic nature of cancer and clinical research into the behavior of cancer and new methods of diagnosis.

REFERENCES

1. Billroth, Theodore: Offenes Schreiben an Herrn Dr. L. Wittelshöfer, Wien. med. Wchnschr. 31:161 (Feb. 5) 1881.

2. Berkson, Joseph, Walters, Waltman, Gray, H. K. and Priestley, J. T.: Mortality and survival in cancer of the stomach: A statistical summary of the experience of the Mayo Clinic, Proc. Staff Meet., Mayo Clin. 27:137 (Apr. 9) 1952.

3. Walters, Waltman, Gray, H. K. and Priestley, J. T.: Carcinoma and Other Malignant Lesions of the Stomach, Philadelphia, W. B. Saunders Company, 1942, 576 pp.

4. Cromer, H. E., Jr., Comfort, M. W. and Butt, H. R.: Gastric acidity in cases of adenomatous gastric polyp, J. Nat. Cancer Inst. 10:497 (Oct.) 1949.

5. Alvarez, W. C. and MacCarty, W. C.: Sizes of resected gastric ulcers and gastric carcinomas, J. A. M. A. 91:226 (July 28) 1928.

6. Conference on Gastric Cancer: Discussion. J. Nat. Cancer Inst. 7:395 (Apr.) 1947.

7. Doehring, P. C. and Eusterman, G. B.: Association of pernicious anemia and carcinoma of the stomach, Arch. Surg. 45:554 (Oct.) 1942.

8. Olson, S. W.: The Gastric Mucosa in Pernicious Anemia: A Study of 94 Autopsy Cases From the Department of Pathologic Anatomy of the Mayo Clinic. Thesis, Graduate School, University of Minnesota, 1943.

9. Kaplan, H. S. and Rigler, L. G.: Pernicious anemia and carcinoma of the stomach—autopsy studies concerning their interrelationship, Am. J. M. Sc. 209:339 (Mar.) 1945.

10. Rigler, L. G., Kaplan, H. S. and Fink, D. L.: Pernicious anemia and the early diagnosis of tumors of the stomach, J. A. M. A. 128:426 (June 9) 1945.

11. Rigler, L. G. and Kaplan, H. S.: Pernicious anemia and tumors of the stomach, J. Nat. Cancer Inst. 7:327 (Apr.) 1947.

12. Comfort, M. W., Kelsey, M. P. and Berkson, Joseph: Gastric acidity before and after the development of carcinoma of the stomach, J. Nat. Cancer Inst. 7:367 (Apr.) 1947.

13. Guiss, L. W. and Stewart, F. W. Chronic atrophic gastritis and cancer of the stomach, Arch. Surg. 46:823 (June) 1943.

14. Stout, A. P.: Gastric mucosal atrophy and carcinoma of the stomach. New York State J. Med. 45:973 (May 1) 1945.

15. Warren, Shields and Meissner, W. A.: Chronic gastritis and carcinoma of the stomach, Gastroenterology, 3:251 (Oct.) 1944.

16. Andersen, H. A.: Personal communication to the author.

17. Seybolt, J. R., Papanicolaou, G. N. and Cooper, W. A.: Cytology in the diagnosis of gastric cancer, Cancer 4:286 (Mar.) 1951.

18. Swarts, J. M., Ragins, A. B., Bernstein, Arthur and Meyer, Jacob: Diagnosis of gastric cancer by cytologic examination of gastric washings, Gastroenterology 14:265 (Feb.) 1950.

19. Bryant, H. C., Craig, W. R. and Pollard, H. M.: Cytologic study of gastric aspirate for carcinoma cells, J. Nat. Cancer Inst. 10:459 (Oct.) 1949.

20. Andersen, H. A., McDonald, J. R. and Olsen, A. M.: Cytologic diagnosis of carcinoma of the esophagus and cardia of the stomach, Proc. Staff Meet., Mayo Clin. 24:245 (May 11) 1949.

21. Comfort, M. W.. The problem of gastric cancer from the viewpoint of the internist, Proc. Staff Meet., Mayo Clin. 27:151 (Apr. 9) 1952.

INFLUENCE OF NEWER CONCEPTS OF NASAL PHYSIOLOGY ON NASAL OPERATIONS

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SHREVEPORT

Among the medical profession, as well as among laymen, there is a general feeling of skepticism concerning the value of certain nasal operations. In some instances, this feeling may be justified. However, at the present time rhinologic surgery can be done successfully and safely if it is performed with a view to insuring a good functional result. The past quarter century has been an era of conservatism in rhinology, and in the last fifteen years more has been done to promote functional surgery than at any time in the history of rhinology. Since a properly functioning nose is conducive to good health, whereas one which functions poorly may be a real detriment to health, functional rhinologic surgery attains particular importance. It is the purpose of this paper to bring to your attention the requisites of a good septal operation, as well as the importance of surgical correction of abnormalities of neighboring structures of the septum at the time of a septal operation if a good functional result is to be obtained. However, it might be well first to review the anatomy of the nose, as well as the functions of the septum.

ANATOMY

It will be recalled that the external nose is composed of a bony vault, which is formed by the nasal bones; a cartilaginous vault, which is below the nasal bones and consists of the upper lateral cartilages and the ventral part of the septum; and the lobule. The lobule is actually a separate part of the nose connected to the upper parts only by skin outside and cutaneous and connective tissue inside. The septum consists of three main parts. One is the hard septum, which is composed of cartilage and bone. Another is the membranous septum, which is the soft septum; it is extremely mobile and consists of mucous membrane and skin. Finally, the last part of the septum is the columella, which is composed of skin, subcutaneous tissue, and the medial crura of the lobular cartilages. It is also known as the semimobile septum.

Today, operative procedures on the septum are not limited to the central portion alone but may involve the whole structure, even its periphery. Since structures adjacent to the septum are frequently involved, the anatomic relationships in this area which may be important should also be mentioned. The nasal bones contribute a perpendicular member to the formation of the septum. Behind these bones and supporting them in the midline is the nasal spine of the frontal bone, a structure of great importance. Its anterior portion is a part of the septum and its continuity with the perpendicular plate of the ethmoid and the nasal bone is of particular concern in mobilization of the septum and external nasal pyramid.

The lobule contains two cartilages called lobular cartilages. Each has a lateral crus, a dome, and a medial crus. The lateral crus helps form the alae and the lateral wall of the vestibule. The medial crus helps form the columella. The dome in connection with the one on the opposite side helps form the tip of the nose. The lobule houses the two vestibules, which are the entrances to each "nose proper." Among landmarks or prominences noted in the vestibule are the caudal margin of the outer extremity of the lateral crus, the caudal margin of the upper lateral cartilage, a cul-de-sac located between the lobular and upper lateral cartilage, and the posterior extremity of the medial crus. Anatomically, the lobular cartilage overrides the upper lateral cartilage.

NEWER CONCEPTS

There has been a renewal of interest in nasal surgery as a result of some newer concepts concerning nasal physiology. It is now generally appreciated that the nose has more functions than merely acting as a "conditioner of air." Why is nasal breathing superior to mouth breathing? Why are there two nasal chambers? What are the reasons for nasal insufficiency and how

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can these be properly corrected? Also, what are the functions of the septum? What are the functions of the vestibule? What are the actions of the lobular and upper lateral cartilages? What is the action of the upper lateral cartilages with the septum? What are the various pathological alterations encountered in the septum? Why does a septum need to be hard and soft at the same time? Why is it fixed, semi-mobile, and freely mobile in different areas? Why is there a partition in the first place? These questions are the concern of all physicians, and it is my intention briefly to review some of the problems posed by them.

FUNCTIONS OF THE SEPTUM

The septum separates the nose into two parts, each of which is a distinct and complete entity. Each part has a neurologic connection with the basal nuclei in the medulla and thence with the nerve supply of the corresponding lung. It provides a hard wall in the air passage which offers controlled resistance to air currents. This resistance is essential to normal breathing, since, as you probably know, the nose offers 40 to 50 per cent of this resistance to breathing. The septum helps support and create the nasal dorsum; in other words it helps to make a roof for the nose. It also serves as a terminus for the rhythmic excursions of the turbinates. Moreover, it separates the medial crura and it supports the nasal mucous membrane. In conjunction with the upper lateral cartilages it completes the valve of the nose, and in conjunction with the turbinates it regulates the air flow and creates eddies of air currents. Finally, together with the nasal bones, it helps to protect the cranial vault.

PATHOLOGY

The pathologic alterations may involve the septum alone, or may involve the septum together with some of its associated structures. For example, a patient may have a deformed bony vault, a deformed cartilaginous vault, or both, and any of these might be associated with malformations of the lobule. The clinical abnormalities of the septum requiring surgical correction include deviations, obstructions, impactions, spurs, ridges and dislocations. Among abnormalities of associated structures may be listed the twisted nose, the saddle nose, a long nose with drooping tip and the flattened tip. Also a large hump can alter direction of air flow. Since abnormalities of the alae or nostril and columella disturb vestibular function, their correction also falls in the field of rhinologic surgery.

REQUISITES FOR GOOD NASAL BREATHING

There are certain requisites for adequate nasal breathing. The first is a good bony vault. This means one in the midline that is in proportion to the rest of the nose. Next, a good cartilaginous vault is essential; its upper lateral cartilages should be in normal relationship to the nasal septum and to the lobular cartilages. The vault should not be saddled, and it should not be projected forward in an abnormal manner. Another requisite is a good lobule; this means that it should be consistent with the age of the patient and in normal relationship with the cartilaginous vault and septum. Also, for normal breathing, a good septum is essential. A hard septum, a soft septum and a semi-soft septum are necessary. Each part of the septum should have a normal relationship to the other parts of the nose. Finally, healthy nasal mucous membrane in both nasal cavities is essential for good breathing.

RECONSTRUCTIVE SURGERY OF THE NASAL SEPTUM

Since deformities of other parts of the external nose often accompany a pathologic septum, a more extensive and flexible procedure than simple submucous resection is required. Ideally, the procedure should permit correction of any or all portions of the hard and membranous septum with avoidance of surgical trauma to uninvolved structures. Moreover, it should be possible to perform the procedure at the same time that associated deformities are being corrected.

The aim of this type of septal surgery should be to produce a good hard septum, a good membranous septum, and a good semimembranous septum. This will help to pre-

serve a septum which functions properly or to refashion a properly functioning septum, that is, one that creates two noses, one that lends support to adjacent nasal structures and one that has adequate relationship to the lateral nasal walls. Also every effort should be made to prevent scar tissue contractions of the cartilaginous dorsum and the base of the nose (columella). The possibility of secondary atrophy and subsequent perforations can be minimized by avoiding injury to the mucosa, perichondrium, and periosteum. Moreover, in this operation it should be possible to retain or "adjust" the valve of the nose.

As in any surgical procedure, the purpose of reconstructive surgery of the nasal septum is to achieve as nearly normal an anatomic and functional result as possible with the least amount of surgical trauma. Certainly, the best septal operation that can be performed is the one which requires the least amount of surgical intervention consistent with a good functional result. The technique used must provide adequate exposure of all parts of the septum and its adjacent structures. For operations on any portion of the septum or its associated structures the incision over the caudal end of the septum, as described by Cottle,[1] not only provides excellent exposure of all parts of the nasal septum and nasal spine and dorsum, but it also inflicts the least amount of trauma to the mucous membrane, the perichondrium, and the periosteum. It is also possible, as in acute fractures, merely to realign parts of the septum or remove small portions so that there are no overlapping fragments. When deformed portions of the septum must be removed and pieces of cartilage or bone are replaced between the septal membranes, an attempt is being made to restore the anatomic relations to as nearly normal as possible. This is not a new idea. In 1902, Freer[2] published an article describing the same anatomic conception of this type of surgical procedure. However, his approach to opening the septum was not as flexible as the one described by Cottle. (Fig. 1).

Figure 1—Case No. 1. D. D.: Deviation of nasal pyramid and septum corrected by septal reconstruction and replacing bony and cartilaginous vault in the midline.

The septum must be considered as an integral part of the whole nose. Operative correction of abnormalities of the septum, or any of its associated structures without due consideration of the other parts of the nose will invariably result in a poorly functioning nose. In performing operations on the septum we must keep in mind its relationship to the lateral nasal walls, the upper lateral cartilages, the nasal bones and the lobule. (Fig. 2).

Figure 2.—Case No. 2. Mrs. D.: Dislocation of caudal end of septum and malalignment of nasal pyramid. Operation included combined reconstruction of septum, moving of external nose to midline and lobule surgery.

If the operative procedure is to include the bony vault, the cartilaginous vault or lobule, further incisions are required. The importance of this combined operation has been emphasized by many writers [3-13] (Fig. 3). A twisted nose, saddle nose or deformed lobule can be corrected at the same time

Figure 3.—Case No. 3. Mr. S. Obstructing septum, retracted columella, and external deformity of the nose, corrected by combined reconstruction of the septum, pyramid and lobule surgery.

that the septum is being operated on. Among deformities which should be corrected when a septal operation is performed are a flattened nose, which requires correction because unless corrected the nose will continue to function poorly regardless of the success of the septal operation. Also a drooping tip needs correction because it prevents proper direction of air currents. Malformations of the ala at times prevent good nasal function, as they change the direction of air currents. The relationship of the lobular and upper lateral cartilages to the septum must always be kept in mind. A crooked nose, one with a large hump, a broad nose, or an adult nose with an infantile lobule are not conducive to good nasal function. These disproportions must be corrected because *submucous resection will not correct these conditions.*

In rhinologic surgery it is impractical to try to use a routine operation, for each patient presents individual problems. Though not plastic surgeons, we as rhinologic surgeons can be plastic in our thinking if we are to achieve the desired result in each individual patient, with minimal disturbance to the normal portions of the nose.

CONCLUSIONS

Better nasal surgery is now being performed because our rhinologic surgeons are better trained and have a better understanding of the functions of the septum and its associated structures. Better results in septal operations are now being obtained when an attempt is made to restore normal anatomic relationships between the septum and the rest of the nose.

REFERENCES

1. Cottle, M. H. and Loring, R. M.: Corrective surgery of the external nasal pyramid and the nasal septum for restoration of normal physiology. Illinois M. J. 90:119 (Aug.) 1946.

2. Freer, O. T.: The correction of deflections of nasal septum with minimum of traumatism. J. A. M. A. 38:636 (March 8) 1902.

3. Cottle, M. H.: Modified nasal septum operations. Eye, Ear, Nose & Throat Month. 29:480 (Sept.) 1950.

4. Cottle, M. H. and Loring, R. M.: Newer concepts of septum surgery; present status. Eye, Ear, Nose & Throat Month. 27:403 (Sept.) 1948.

5. Cottle, M. H.: Introduction to Fundamentals of Reconstructive Surgery of Nasal Septum and External Nasal Pyramid. Laboratory Manual.

6. Cottle, M. H. and Loring, R. M.: Surgery of the nasal septum—new operative procedures and indications. Ann. Otol., Rhin. & Laryng. 57:705 (Sept.) 1948.

7. Salinger, S.: Deviation of the septum in relation to the twisted nose. Arch. Otolaryng. 29:520 (March) 1939.

8. Maliniac, J. W.: Role of the septum in rhinoplasty. Arch Otolaryng. 48:189 (Aug.) 1948.

9. Fomon, S., Gilbert, J. G., Silver, A. G. and Syracuse, V. R.: Plastic repair of the obstructing nasal septum. Arch. Otolaryng. 47:7 (Jan.) 1948.

10. Williams, R. L.: Functions of the nasal septum as related to septal reconstructive surgery. (Presented before the meeting of the Middle Section, American Laryngological, Rhinological and Otological Society, Chicago, Illinois, (Jan. 19) 1953.

11. Riggs, R. H.: The management of nasal injuries. New Orleans M. & S. J. 102:382 (Feb.) 1950.

12. Riggs, R. H.: The saddle nose. South. M. J. 44:188 (March) 1951.

13. Riggs, R. H.: The relation of septum reconstruction to external deformities of the nose. (Presented before the meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society, Nashville, Tennessee, January 12, 1953. To be published).

THE PROBLEM OF THE NASAL POLYP

H. L. KEARNEY, M. D.

NEW ORLEANS

All benign nasal polyps may be divided into two classes:

1. The common nasal polyp.
2. The antro-choanal polyp.

The purpose of this discussion is to survey some of the literature on the subject and compare the two varieties of nasal polyps in regard to theories of etiology, pathology, and treatment.

Lederer[6] puts all nasal polyps under the classification of hyperplastic rhinitis and does not differentiate the nasal polyp from the antro-choanal polyp. As etiological fac-

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tors he mentions chronic rhinitis or sinus disease, deficient drainage and ventilation, and allergy. He describes polyps as edematous, fibrous, angiectatic, glandular, or cystic.

ANTRO-CHOANAL POLYP

The antro-choanal polyp is pedunculated and originates in the maxillary sinus where the pedicle is attached; this variety is much less common than the common nasal polyp and exhibits some characteristic differences from the common nasal polyp. Myers[7] found only two cases of antro-choanal polyp in more than 25,000 examinations in military service. Heck, Hallberg and Williams[4] report an incidence of 3.7 per cent of antro-choanal polyps in a series of 1,720 patients with a diagnosis of nasal polyps (used as an inclusive term) seen at the Mayo Clinic in a ten year period. Goldsmith[3] describes the origin of the antro-choanal polyp as the result of an inflammatory process within the antrum causing a herniation of the edematous lining membrane through the ostium; on the subsidence of the inflammatory process the herniated mucosa, now a polyp, has become too large to return through the opening whence it came, and thus we have the beginning of the antro-choanal polyp.

COMMON NASAL POLYP

The common nasal polyp may be pedunculated or sessile and usually arises from the middle turbinate, the uncinate process, the bulla ethmoidalis or the maxillary ostium. Opinions on allergy as an etiologic factor in the common nasal polyp vary from the idea that allergy is the cause, to the belief that allergy is sometimes the result of nasal polyposis; and in selected cases both viewpoints have strong support. Duke[2] reported that 24 per cent of 500 patients who had perennial allergy had nasal polyps, but that only 10 per cent of patients who had seasonal allergy had nasal polyps. Heck, Hallberg and Williams[4] believe that evidence of allergy is found in practically 100 per cent of nasal polyps but positive indication of an allergic factor was present in only 23.4 per cent of antro-choanal polyps in their series. Kern and Schenck[5] have suggested that true hypersensitiveness to bacteria in the presence of the allergic factor will explain the etiology of polyps, and failure to reckon with these factors is the primary cause of postoperative recurrence. To this Weille[8] says: "it must be emphasized that highly trained and experienced allergists are often unable to control nasal polyps or polypoid degeneration by their own methods in dealing with extrinsic factors, and have even less success when the allergy factor is regarded as intrinsic." And to again quote Weille, who is intrigued with the idea of a virus being the cause of nasal polyposis: "The hypothesis that a specific allergy virus or nasal viral infection can cause nasal and sinus polyposis, vasomotor rhinitis and intrinsic asthma is proposed and offers an attractive field for research."

Thus it appears that allergy is an important factor in the etiology of common nasal polyps. However, there must be other factors than allergy in the etiology of common nasal polyps because we see many patients with nasal allergy who never develop nasal polyps. In the case of antro-choanal polyps, the role played by allergy is more obscure, if it exists at all as an etiological factor.

Perhaps there might be some hormonal factor in the etiology of all nasal polyps as there seems to be in children who have laryngeal papillomatosis and in juvenile fibroma of the nasopharynx, in which cases the onset of puberty appears to alter the clinical picture. If so, I have been unable to confirm it. There has been no age, sex, or other factor in my series which would give credence to the hormonal theory of etiology of either the antro-choanal polyp or the common nasal polyp.

TREATMENT OF THE ANTRO-CHOANAL POLYP

Direct removal of the antro-choanal polyp at its attachment in the maxillary sinus is the treatment of choice, and is best done by the Caldwell-Luc approach. Recurrence is much less likely after this operation than after simple intranasal removal of the polyp. If the patient is elderly or a poor surgical risk then the simple intranasal removal should be done. Heck, Hallberg and Williams[4] report recurrence in approximate 5.5 per cent of cases in which the ex-

ternal approach was used and in 28.2 per cent of the cases in which avulsion or removal through an antrum window was employed.

G. M., white male, age 12 years, was first seen March 3, 1942, and gave a history of having had polyps removed from his nose in July 1940, and again in September 1940. The mother stated that microscopic examination of the removed tissue had been reported as benign. Examination showed a large polyp protruding from the right naris and visible in the nasopharynx with the nasopharyngeal mirror; there was a marked deviation of the septum to the left, apparently caused by pressure from the polyp. This large polyp was removed under general anesthesia March 14, 1942, with the snare; after its removal no vestige of polyp could be seen in the nose. Three weeks later a rather large polyp was already partly filling the right side of the nose, and six weeks from the time of the removal the right side of the nose was again completely filled with polyp. Right Caldwell-Luc operation was advised and was done July 25, 1942, at Southern Baptist Hospital. After removal of the lining mucosa of the antrum the polyp could be removed by simply lifting it from the nose, as it no longer had its pedicle attached in the antrum. After removal of the polyp the natural opening of the antrum was found to have been enlarged by the polyp to a diameter of at least one inch, reaching from near the antral floor to near the antral roof.

Microscopic report: "Polyp composed of edematous connective tissue containing in some areas mucous glands and in others showing acute or subacute chronic inflammation. The tissue is partly covered by transitional epithelium. No evidence of malignancy."

The patient was last seen Nov. 19, 1942, and showed no evidence of recurrence of his polyp.

Mrs. L. E., white female age 22; history of removal of polyp from back of nose on several occasions with recurrence. Posterior rhinoscopy showed a polyp in the left posterior naris coming from the left middle meatus. X-ray of the sinuses showed diffuse shadow of the left antrum. Left Caldwell-Luc operation was done Jan. 3, 1953, at Southern Baptist Hospital and the polyp was removed by pulling it back through the antral ostium.

Laboratory report: "Lymphangiomatous polyp showing slight chronic inflammation and marked edema."

TREATMENT OF THE COMMON NASAL POLYP

The simplest and most practical method of treatment of the common nasal polyp in most cases is simple intranasal excision and treatment for the allergy as indicated. Recurrence of the condition occurs sooner or later in most cases and if the patient can be kept comfortable for a year or more before recurrence of polyps occurs, then again simple removal of the recurrent polyps is the treatment of choice. If there are other rhinological indications for surgery of a more radical nature, then radical surgery should be done according to the indications. For some patients with chronic sinus infections and polyps, the Caldwell-Luc operation or ethmoidectomy may be of great benefit. In others, these procedures will be disappointing. Histological study should be made of these polyps; and when operating on extensive nasal polyposis if one finds tissue which looks different and bleeds, this tissue should be labeled for the special attention of the pathologist. Nasal polyposis can seriously obscure the issue in the patient who has carcinoma of the Schneiderian membrane or in the paranasal sinuses.

Mrs. L. H., widow, age 59. History of long standing complete obstruction of both sides of the nose. Examination showed large pedunculated polyps coming from each middle meatus. On removal of the polyps on May 1, 1947, friable, bleeding tissue was found in the left middle meatus and this tissue was labeled separately for the pathologist. While the polyps were common nasal polyps, the report on this special biopsy was: "Transitional cell carcinoma, grade III." Deep x-ray therapy was given and the patient lived for nearly six years.

In the following case the patient had spent much of her time in doctors' offices and hospitals in an earnest effort on the part of many doctors to relieve her of bilateral nasal obstruction from the common nasal polyp.

E. B., white female, single, age 42, was first seen by me July 10, 1950, with a history of more or less nasal obstruction from nasal polyps for thirty years. She was very much depressed and estimated that she had had considerably more than 500 major and minor operations on the nose and sinuses. Her trouble had started at age 12 in 1920, and the polyps were removed about twice a week for a period of a year. Then with another surgeon she had simple removal of polyps almost daily at first, then three times a week, then twice a week for a period of about three years; then another surgeon and polypectomies an average of twice a week for three years. Then a bilateral Caldwell-Luc operation was followed shortly by resumption of polypectomies. Then about three years later, she had bilateral Caldwell-Luc operations and bilateral ethmoidectomy, followed by resumption of polypectomies. At one time she had a period of treat-

ment with x-ray, ultra-voilet ray, and the electric needle.

On examination, she had polyps protruding from the left nostril and there was a foul constant discharge from the left nostril which she wiped away from time to time. Polyps were also present in the right side of the nose and mirror examination showed both posterior nares occluded by polyps. The orbits were set widely apart and she had a marked widening of the bridge of the nose. She had an alternating external strabismus, a familial condition which was present in some other members of the family. Several years previously she had had marked anemia from uterine bleeding and hysterectomy had been done for massive uterine fibroids.

X-ray examination of the sinuses was reported as follows: "The nasal cavity is greatly expanded and is rendered opaque by masses of homogeneous soft tissue density, presumably polyps. The process is more extensive on the left and probably extends into the left ethmoid labyrinth with consequent expansion of the labyrinth and flattening of the medial wall of the orbit. The antra and sphenoids are diffusely clouded. The nasal bones are widely separated. The wide separation of the orbits probably is a congenital malformation (hypertelorism) although it is enhanced by the pressure effect of the polypoid tumors."

The patient was admitted to Touro Infirmary where rhinotomy under intravenous pentothal anesthesia supplemented by intratracheal nitrous oxide was done July 22, 1950, according to the technique of Bordley and Longmire.[1] When the nose was turned back on the right side of the face on its hinge of skin and periosteum, the nasal cavities were found completely filled with polypi. (Figure 1) It was found that previous naso-antral openings had been made in the inferior meatuses and both middle turbinates had been removed. Submucous resection of the nasal septum had not previously been done, and this was done to provide better access to all parts of the nasal cavity. Ethmoidectomy had been one of her previous operations and was complete with the exception of one large posterior ethmoid cell on the left; and it was the expanding polyps in this cell which had pushed the left medial orbital wall laterally. All polypi were removed. Bleeding was more troublesome in the ethmoid areas, where it was controlled by electrocoagulation, than in the skin incisions and septum. The nose was replaced by suturing the two portions of the septum together with interrupted sutures of 0000 chromic catgut on an atraumatic needle, the sutures all being placed before the first was tied. The skin incisions were closed with subcutaneous catgut and silk skin sutures. (Figure 2)

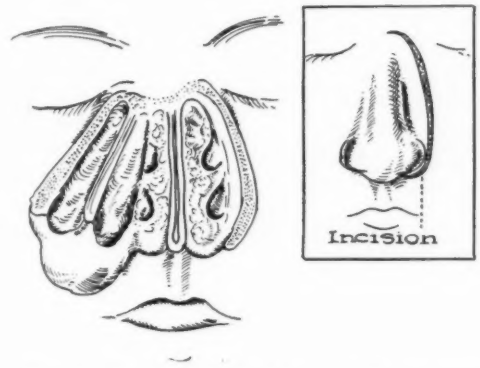

Fig. 1.—Showing the incision and the exposure in rhinotomy.

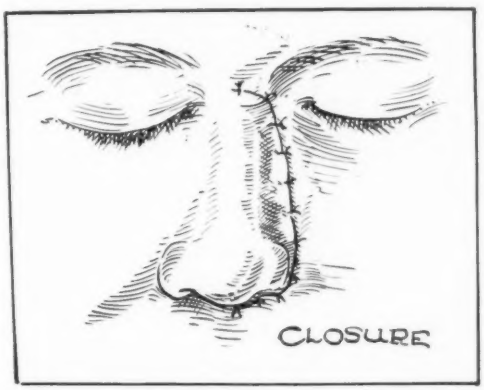

Fig. 2.—Showing the closure in rhinotomy.

The nose was loosely packed on both sides with carbozene gauze and a splint previously moulded from dental compound was attached over the nose with adhesive tape. It was estimated that 1500 cc. of blood was lost during the operation which took about four and a half hours. Transfusion of 2000 cc. of blood was started at the beginning of the operation and completed after return of the patient in good condition to her room. All tumor tissue appeared grossly to be common nasal polyps and no gross evidence of malignancy was seen. The pathologist reported the gross weight of the specimens as 23.5 grams and the microscopic diagnosis as: "Multiple benign nasal polyps." There was primary healing of the skin wound and the septum. The patient came to my office on the sixth post-operative day. Crusting in the nose was controlled by the use of nasal douches which were discontinued after about three months when the crusting ceased. There has been no recurrence of polyps.

Fig. 3.
Preoperative

Fig. 4.
Postoperative

SUMMARY

1. The characteristics and treatment of antro-choanal polyps and the common nasal polyp are discussed.

2. The importance of biopsy is stressed and a case of nasal polyposis associated with carcinoma is reported.

3. The value of rhinotomy in very carefully selected cases is discussed and a rhinotomy successful in ridding the patient of nasal polyposis, after more than 500 orthodox operations had failed, is reported.

REFERENCES

1. Bordley, J. E., and Longmire, W. P.: Rhinotomy for exploration of the nasal passages and the accessory nasal sinuses .Ann. Otol., Rhin. & Laryng. 58:1055 (Dec.) 1949.

2. Duke, W. W.: Allergy as related to otolaryngology, Ann. Otol., Rhin. & Laryng. 36:820 (Sept.) 1927.

3. Goldsmith, P. G.: Diagnosis and treatment of inflammation of the maxillary antrum. Canad. M. A. J. 23:512, 1930.

4. Heck, W. E., Hallberg, O. E., and Williams, H. L.: Antrochoanal Polyp. Archiv. Otolaryng. 52:538 (Oct.) 1950.

5. Kern, R. A., and Schenck, H. P.: Allergy a constant factor in the etiology of so-called mucous nasal polyps, J. Allergy 4:485 (Sept.) 1933.

6. Lederer, F. L.: Diseases of the Ear, Nose, and Throat, ed. 6, Philadelphia, F. A. Davis Company, 1952, p. 490-491.

7. Myers, D.: Obstruction of the nasopharynx secondary to choanal polyp of antral origin. Archiv. Otolaryng. 44:328 (Sept.) 1946.

8. Weille, F. L.: The effect of nasal and sinus surgery upon the manifestations of allergy. New England J. Med. 242:43 (Jan.) 1950.

CURRENT TRENDS IN NOSE, THROAT AND EAR THERAPY*

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During recent years there has been a growing tendency among rhinologists to treat most nasal infections more conservatively than in the past.

The results of the radical sinus operations frequently practiced twenty or thirty years ago have not stood the test of time, except in the case of malignancy. As a consequence, every rhinologist is consulted by dissatisfied patients who seek relief from the resultant dryness, crusting, and headaches.

NASAL THERAPY

In the past too little thought was given to the protective mucous membrane and the importance of preserving it, if at all possible. Oily drops and sprays which were freely prescribed in almost all intranasal affections for over fifty years are now reserved for atrophic conditions with marked destruction of cilia. The popularity of silver salt preparations has also decreased due to greater knowledge of nasal physiology.

Self-medication by the laity has always been popular to relieve congestion in such conditions as the common cold, acute catarrhal rhinitis, allergic rhinitis and acute sinusitis. The pharmaceutical houses have fully realized the commercial possibilities, and as a result, every drug counter has a variety of nose drops, sprays, or inhalers prominently displayed. The millions of dollars spent annually by a sinus-conscious public to relieve "stuffiness" in the nose is only exceeded by the amount expended on laxatives.

With the advent of the sulfonamides and later the antibiotics it was only natural for laymen and often rhinologists to expect the same spectacular results locally in the nose as occurred in other fields of medicine. This

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early enthusiasm failed to recognize two or three important facts.

In the case of penicillin, Fleming has stated that it is important that the antibiotic remains in contact with the susceptible organism in sufficient concentration and long enough to be effective. Although it is too much to expect the average layman to appreciate nasal physiology, every rhinologist should know that the overlying blanket of mucus in the posterior two-thirds of the nose replaces itself every ten minutes. Also, as a quart of mucus is secreted every twenty-four hours from the glands in the nasal mucosa and exudes on to the surface, it is difficult to imagine how a topical application can penetrate this travelling conveyor belt and go is it were, against the stream. Besides when the columnar cells on the surface are swollen and engorged they offer a definite barrier to organisms that have reached the submucosa.

In view of these facts it is hopeless to expect any lasting result from the antibiotics when used in drops, sprays, inhalers or by displacement. Any benefit is usually due to the vasoconstrictor present which aids ventilation and drainage.

It has been known for a long time that an abscess surrounded by a capsule resists the penetration of any antibiotic unless injected directly into the abscess cavity. The only other logical approach is by intramuscular injection. This applies equally well in acute and subacute infections in the nose perhaps supplemented with sulfonamides by mouth. At times, if penicillin or streptomycin is ineffective or resistant strains are encountered, a change to one of the newer antibiotics is advisable.

The glowing reports attributed to the use of 5 per cent sulfathiazole as a spray in cases of subacute and chronic sinusitis have not been substantiated. The high alkilinity (pH 9 or 10) and the caustic action of the drug causes a marked destruction of the surface cells including the cilia, even when used for a short time. Besides these harmful effects, again the lack of penetration mitigates against its usefulness.

During the past twenty-five years many new facts in nasal physiology have become known. In the light of this knowledge thoughtful rhinologists should not be swayed by the enthusiastic claims of drug house representatives as to the bactericidal effect of their particular nose drops.

Recently the trend in nasal medication has been toward vasoconstrictors in saline. Ephedrine in normal salt solution, ½ or 1 per cent has long been considered one of the best shrinking agents to relieve nasal congestion. This solution has a pH of 5.9 (slightly acid) and in the above strengths does not injure the mucous membrane or interfere with ciliary action.

Unfortunately side effects sometimes occur, such as nervousness, palpitation, general weakness, nausea, and occasionally shock. In order to avoid these undesirable reactions synthetic vasoconstrictors were manufactured and are freely advertised by the press and radio. As a rule synthetic preparations produce a greater shrinkage and the action is more prolonged than when ephedrine is used.

Although the greater degree of constriction relieves the stuffiness of the nose quickly and effectively, at times this is a disadvantage. Frequently, patients after experiencing the free breathing following the instillation of the drops use them oftener and longer than is necessary. If this practice is continued to reduce swollen nasal mucosa the membrane loses its tone and it is necessary to use the drops more often. In time the mucous membrane becomes boggy and edematous and frequently resembles the appearance seen in hayfever sufferers.

At this stage the drops which have caused the condition are of no use. This type of sensitivity is seen as a result of synthetic constriction rather than when natural ephedrine is used. On the other hand, there is no doubt that the temporary relief obtained from the stuffiness or nasal blockage is quite justified, when used for a few days at a time. The comfort in breathing when ventilation and drainage are established certainly relieves the distress of the patient.

Rhinologists are fortunate at the present time to have at their disposal many vasoconstrictors in saline which are compatible with nasal secretions and do not injure the cilia or mucous membrane. It should be our duty in prescribing nasal medication in cases of acute rhinitis or sinusitis to instruct our patients how to instil the drops and to discontinue their use when the acute inflammation has subsided. At times it may be necessary to mark the prescription "not to be repeated" to avoid overmedication because although the drops relieve the congestion they do not cure the infection.

The antihistamines as a cure for the common cold can be dismissed in a few words. The early claims that these drugs aborted colds in the early stages and were also effective when colds were well developed, are of course not true. This is a good example of the public spending huge sums of money unnecessarily because insufficient research had been carried out beforehand.

THERAPY OF THROAT CONDITIONS

Throat medication has always been popular among laymen. The accessibility of the pharynx lends itself to local applications and swabbing. From time immemorial various gargles have been used for almost all types of sore throat and it is remarkable how much faith the average person has in this form of treatment. The claims of some drug companies that their particular gargle kills certain pathogenic bacteria in a few seconds might be true in the test tube but in the mouth or throat this is impossible. Paints or gargles are washed away so quickly that it is hard to imagine any beneficial result. To be effective strong antiseptics would be required and with these, of course, there is always the danger of injuring the pharyngeal mucosa. Besides, in the act of gargling with the head thrown back, it is necessary for the posterior part of the tongue to approximate the soft palate to prevent fluid from entering the larynx.

The futility of this can easily be seen by using a dye and noting the stained area or having a patient gargle with iodized oil under the fluoroscope and viewing him from the side. The dye or oil does not reach beyond the third molar tooth or the anterior pillar of the tonsil. Painting the tonsils or pharynx is of little use although the cauterizing effect of silver nitrate at times seems to give some benefit.

At times, it is necessary to prescribe some form of a gargle for patients with acute sore throats. Although every laryngologist knows that hot saline solution is often better, many patients expect an expensive gargle. Any helpful result obtained is of course purely psychological.

The one form of local treatment perhaps above all others, which soothes and comforts a patient with an acute sore throat is the old-fashioned throat irrigation. Any patient with a quinsy for instance, who has had hot saline solution directed toward the back of the pharynx with the head bent slightly forward and the throat relaxed does not need to be persuaded to have the treatment repeated. Sodium bicarbonate in solution or added to the saline also helps to dissolve the sticky mucus present.

Local treatment of the throat by means of lozenges or pastilles is of doubtful value. Soluble tablets remain such a short time in the mouth, as they are so quickly diluted with saliva, that they are quite ineffective.

When the sulfa compounds and penicillin appeared, many enterprising firms manufactured lozenges containing a small amount of these drugs. Unfortunately for the public, soluble tablets containing 1 to 3,000 units of penicillin can be purchased at drug counters in Canada without a doctor's prescription. As a result many patients practise this form of self-medication on the suggestion of their friends or perhaps the druggist. Apart from the lack of penetration in these weak concentrations there is always the danger of sensitivities or allergic reactions developing. The raw, inflamed and swollen tongue which resembles that seen in scarlet fever is typical. The patient often complains of a tingling or scalded sensation as though his tongue had been "burned with hot soup." These symptoms subside quickly on discontinuing the throat lozenges and perhaps prescribing an antihistamine by mouth.

Our present day concept in the treatment of any severe throat infection remains the same as for an acute nasal infection. If the offending organism is gram-positive adequate doses of the sulfonamides are required by mouth or penicillin by injection over a sufficient period. In a severe streptococcic infection of the throat it is unwise to rely solely on the local use of sulfa or penicillin instead of large intramuscular injections of penicillin.

THERAPY OF EAR CONDITIONS

These remarks on the treatment of nose and throat conditions apply equally well in acute and subacute infections of the ear. Sulfa and antibiotic drops have been given by the family physician and many otologists for an acute suppurative otitis media and external otitis. It is extremely doubtful if there is any advantage of these drugs locally over the older conservative methods and there is always the danger of patients becoming sensitive to the agents or resistant bacterial strains developing.

Dermatologists are frequently called upon to treat eczematous eruptions of the auricle and lobule following the instillation of antibiotic drops, the application of ointments or powders to the ear. Here again systemic therapy is safer and of greater value, chemotherapy by mouth and penicillin or streptomycin by injection, provided the masking effect is kept in mind.

In chronic mastoiditis as in chronic sinusitis little or nothing is gained by sulfa or antibiotic therapy and the false security after the administration of these drugs is sometimes dangerous.

It is wise to remember that chemotherapy and the antibiotics should be reserved for severe acute infections of the nose, throat and ear and not given for minor complaints. Theoretically, a culture should be taken to ascertain the offending organism but at times this is not always practical.

If penicillin is not effective within a few days a change is recommended to one of the newer antibiotics. Although as a rule it is nontoxic, certain patients rather easily develop marked allergies to penicillin and in some cases its use has to be discontinued.

AUREOMYCIN

Aureomycin, a golden powder which appeared in 1948, has a wide range of effectiveness against gram-positive and gram-negative bacteria. Its action however appears weaker than penicillin, if the infection present is caused solely by a gram-positive organism. Aureomycin can be given either intravenously or by mouth. The latter mode of administration is preferable in the great majority of instances because it is readily absorbed from the gastrointestinal tract and when given intravenously it sometimes produces thrombophlebitis. The liability of side effects such as nausea, vomiting, and epigastric pain should be kept in mind. Many physicians prefer to administer aureomycin at meal times or in milk—the latter tends to reduce the acidity of the drug and makes it more easily tolerated.

Lesions of the skin and mucous membrane occur fairly frequently and are suggestive of vitamin B deficiency. This may be due to the fact that aureomycin is too effective in destroying the normal bacterial flora of the intestine and thereby interfering with vitamin B metabolism. To overcome this effect the use of lacto-bacillus preparations by mouth has been advocated during the long term administration of the drug. However, this replaces only one type of organism and large doses are necessary.

Soreness of the tongue and pharynx may develop soon after the drug is started. The tongue often appears hyperemic, swollen, and very tender to the touch. In other cases it is brownish or black due to an overgrowth of the filiform papillae, the so-called black tongue. Besides glossitis and dermatitis, an annoying reaction is itchiness and irritability of mucous membrane and skin surfaces. In most of these lesions a monilia can be isolated. This again is thought to be due to a deficiency of vitamin B.

There is no evidence that aureomycin induces renal, hepatic or hematologic changes and the tendency to produce bacterial resistance is negligible.

It should be borne in mind nevertheless that the skin and mucous membrane lesions which occasionally accompany aureomycin

therapy are at worst only troublesome and usually do not require discontinuing the drug. It is important, however, that they be recognized so that means, i. e. vitamin therapy, may be taken to prevent them and when they occur the patient can be reassured. Recently, it has been found that the dosage can be reduced to a half and still be as effective. Instead of 250 mgm. every four or six hours as previously recommended 100 or 150 mgm. seems sufficient for the average adult. In this way the side effects are less noticeable.

CHLOROMYCETIN

Chloromycetin, a still newer antibiotic, has like aureomycin, been instrumental in extending the range of effectiveness to include certain bacterial diseases, such as typhoid fever, that have previously been refractory, and also, certain rickettsial diseases. Contrary to earlier reports it has no definite value in mumps. Nickerson and Worden[1] showed that in 57 consecutive cases of mumps that were uncomplicated by other diseases, it failed to exert any favorable influence on the clinical course of this condition. Chloromycetin has a low degree of toxicity. Nevertheless headache, nausea, vomiting, diarrhea, or dryness of the mouth and throat occasionally occur. At times the drug has to be discontinued because of gastrointestinal intolerance characterized by gastroenteritis. In sporadic cases, also, signs suggestive of B deficiency, similar to those described in connection with aureomycin, develop during treatment. Glossitis, "black tongue," stomatitis and pharyngitis were observed in 12 of 200 patients reported by Williams[2] during chloromycetin therapy. Of the 12 patients with complications, 9 developed *Monilia albicans* infections of the mouth and throat. These effects were not entirely prevented in patients who received vitamin supplements. Chloromycetin was discontinued in 6 patients because of the severity of the reactions. Several instances of blood and bone marrow changes during treatment with chloromycetin have been reported by Volini.[3] These changes, which disappeared when treatment was stopped consisted of granulocytopenia of the peripheral blood and granulocytic hypoplasia with maturation arrest of erythrocytes and granulocytes in the bone marrow. Some bacterial resistance can be demonstrated experimentally, but apparently rickettsial sensitivity remains unchanged during treatment. On the whole, it appears that chloromycetin has the advantage of fewer side effect than aureomycin.

TERRAMYCIN

Terramycin, another of the practical antibiotics, derived from the soil, is well tolerated and covers a wide range of gram-positive and gram-negative organisms. It has not been studied as extensively as the others but it appears to be relatively nontoxic with fewer side effects than aureomycin or chloromycetin. Occasionally, untoward effects are noted during oral administration, such as nausea, vomiting, diarrhea, and glossitis. Usually these are of little consequence but sometimes have been severe enough to require withdrawal of the drug. The gastrointestinal side effects are lessened by giving the preparation in milk. Terramycin is rapidly absorbed from the digestive tract. In general the absorption, distribution, and excretion of the drug are similar to those of aureomycin. After oral administration of 0.5 gm. of terramycin, a significant blood level, about 1 microgram per cubic centimeter, rapidly develops and persists six to eight hours. When 0.5 gm. is given orally every six hours, blood levels of between 2 and 3 micrograms per cubic centimeter are maintained. Terramycin is widely distributed throughout the tissues of the body after ingestion of the drug. Of special importance is the ability of the material to cross the normal barrier between the blood and the brain. The concentration of terramycin in the brain, as well as in the skin becomes much higher than the blood level.

BACITRACIN

If surface treatment is called for against gram-positive and some gram-negative organisms as in external otitis, bactracin is indicated. It is used mostly as a topical antibiotic and as such is both safe and highly effective. There is also less danger of skin reactions than when penicillin is ap-

plied locally. It should be borne in mind, however, that the toxicity of bacitracin when given parenterally consists for the most part of rather mild and reversible kidney damage and that this is not inevitable. Consequently, the drug can be used in generalized infections in cases in which other means of controlling the infection have failed and in these circumstances it may be life-saving. Furthermore, there is evidence that it can be combined with penicillin in a dose that is not toxic.

A list of common nose, throat and ear infections, (Table 1) compiled by Perrin Long, is given, with the antibiotic of choice. In general he favors aureomycin in most conditions, in spite of the occasional disagreeable side effects.

TABLE 1

SPECIFIC TREATMENT OF INFECTIONS OF THE NOSE AND THROAT
DRUG OR ANTIBIOTIC OF CHOICE

INFECTION	D.	PENI.	STREPTO.	AUREO.	CHLORO.	TERRA.
Agranulocytosis		II		I		II
Bronchiectasis		III	IV	I	II	II
Bronchitis				I	II	II
Common Cold						
Diphtheria		Antitoxin plus I				
Laryngotracheobronchitis		III		I	II	II
Ludwig's Angina		II		I		III
Lymphadenitis	I	II		III		III
Acute Mastoiditis	II	I		II		II
Chronic Mastoiditis	II	I		II		II
Acute Otitis Externa				I		II
Chronic Otitis Externa	III	II		I		II
Acute Otitis Media	III	II		I		II
Chronic Otitis Media	III	II		I		II
Pharyngitis (Viral)	III	I		II		II
Lateral Sinus Thrombosis	III	I		II		III
Cavernous Sinus Thrombosis	III	I		II		III
Acute Sinusitis	III	I		I		II
Chronic Sinusitis	III	III		I		II
Acute Tonsillitis	I	I		II		II
Acute Tracheitis						
Tuberculosis of Larynx-Trachea			I-PAS			
Vincent's Infection		I		II		II

I—First Choice
II—Second Choice
III—Third Choice
IV—Fourth Choice
U—Unknown
Blank—No Established Value

It remains to be seen in the future whether the newer and more innocuous chloromycetin or terramycin will be more frequently used.

Bacteriologists in general might not agree to this classification (Table 2) unless a culture was first taken and the antibiotic given only until the organism was isolated and its sensitivity determined.

Polymyxin is suggested for *Ps. Aeruginosa* but sufficient time has not elapsed to appraise its value.

TREATMENT OF EXTERNAL OTITIS

The treatment of external otitis has changed in recent years. This is due in great measure to our increased knowledge and the recognition of the importance in maintaining the normal "acid mantle" to

TABLE 2

PRESENT DAY USAGE OF ANTIBIOTICS IN INFECTIONS

Type of Infection	Peni.	Strepto. or Dihydro.	Aureo.	Chloro.	Terra.	Sulfa.
Streptococcal Infections						
1. Beta Hemolytic	IA		IB	II	IB	
2. Alpha Hemolytic	I		II	III	II	
3. Non Hemolytic	IA		IB	N	IB	
4. All Enterococci	III*	II*	I	III	II	
Staphylococcal Infections	II		I	II	III	
Pneumococcal Infections	I		II	III	II	
Gram-Neg. Bacillary Infections						
1. E. coli			IA	I	I	
2. Kl. pneumoniae			IB	IA	IB	
3. Proteus						Plus
4. A. aerogenes			IB	IA	IB	
5. Ps. aeruginosa		Polymixin is best			III	Plus
6. H. influenzae				I		

IA—First Choice
IB—Second Choice
II—Effective
III—Good
N—Not Evaluated
*—Can Be Combined
Blank—Not Effective

the skin of the ear canal. It is now thought that the vast majority of cases of "infectious" otitis externa are caused by bacteria and only perhaps about 15 per cent of fungus origin.

Many newer forms of local treatment are at present available.

Neomycin was discovered in 1949, by Waksman and Lechevalier[4] as a result of a search for an antibiotic possessing activity similar to streptomycin but less toxic. However, in use neomycin has been found to be as toxic as streptomycin in many respects and shows little advantage over other antibiotics. It can be used topically in cases where the organism is resistant to all other antibiotics. In cases of external otitis, where the offending organism is most frequently *Ps. aeruginosa*, a 1 per cent solution of neomycin in saline is often effective. A pack of gauze or absorbent soaked in neomycin is inserted into the canal and the patient given a bottle of this solution to keep the pack moist. The results have been good with very little likelihood of sensitivities developing. Neomycin in saline is quite stable and will remain potent for at least six months at room temperature although it may turn slightly brown. The discoloration does not impair its effectiveness but for this reason refrigeration has been recommended. For the dry scaly type of eczema in the ear canals neomycin sulfate, 5 mg. per gram (Myciguent) is often useful to relieve the dryness and itchiness. It is quite stable. An agent which seems effective in many cases is sulfamylon.[6] This solution has been shown to eradicate many gram-positive as well as gram-negative organisms including *B. pyocyaneus*. A new 5 per cent mixture of sulfamylon, containing benzocaine in propylene glycol, has been used experimentally in recent months. It appears to be an improvement as the benzocaine relieves any

burning sensation and the propylene glycol acts as a wetting agent allowing deeper penetration. The pH is well within the acid range being btween 4.5 to 5.0. Apart from local treatment terramycin by mouth often increases its effectiveness.

Polymyxin B sulfate in acidified propylene glycol (aerosporin)[6] is another solution that destroys pseudomonas and certain staphylococci and streptococci. It is claimed that it also kills certain fungi. Aerosporin 0.1 per cent in methyl cellulose has also been found useful to relieve itchiness. Swabbed gently along the canal wall it forms a protective coating which is very soothing. Aerosporin may be used with other antibiotics when indicated. For instance, it may be combined with bacitracin which is effective against many gram-positive organisms. Both Polymixin B and Bacitracin have low degrees of toxicity. A suitable ointment containing these two drugs (polysporin) has been found useful in certain types of dry eczema.

In fungus infections cresatin is still perhaps one of the most helpful agents. A cotton wick saturated with this solution is inserted into the affected canal and the patient instructed to keep it moist. When prescribed for the patient it is wise to dilute cresatin in olive or almond oil (cresatin one part and vegetable oil, three parts) because if used repeatedly at full strength there is always the danger of excessive exfoliation of surface epithelium. The wick is removed in twenty-four hours. Usually at that time the skin of the canal appears white and often a cast of the whole canal comes away on gentle swabbing or irrigation.

After a few such daily treatments the canal usually appears widely open and the symptoms are relieved. At times patients find the odor of cresatin very disagreeable. When this occurs a few drops of oil of peppermint, wintergreen or cinnamon, added to the solution relieves this condition, (5 to 10 drops of any of the essential oils per ounce).

Ilotycin is a new antibiotic produced by a strain of *Streptomyces erythreus*. It is said to be particularly useful against infections caused by gram-positive organisms resistant to other antibiotics or hypersensitive to penicillin. No contraindications to its use have been discovered and few side effects, such as gastrointestinal upsets reported, in the dosage recommended. It is supplied in 100 mg. coated tablets. For moderate infections 300 mg. every eight hours is usually sufficient for the average adult. Although a promising agent in various streptococci, staphylococci and pneumococci infections, it has not been available long enough to thoroughly appraise its value.

CONCLUSION

No doubt, in time other antibiotics without distressing side effects will be added to our armamentarium which will prove of still greater benefit to mankind. Although many of the acute infections in our specialty can now be controlled with these newer agents, by endeavoring to enlarge our field there is no need of pessimism in the future of otolaryngology.

REFERENCES

1. Nickerson, G. H. and Worden, E. M.: Chloromycetin in the treatment of mumps, Canadian M. A. J., 66:17, 1952.
2. Williams, Bryan, Jr.: Amer. Prac. & Dig. Treat., 1:897, 1950.
3. Volini et al.: J. A. M. A. 142:1333, 1950.
4. Waksman, S. A. and Lechevalier, H. A.: A New Antibiotic Active Against Streptomycin—Resistant Bacteria, Including Tuberculosis Organisms, Science 109:305, 1949.
5. Diehl, K. L.: Sulfamylon in the Treatment of External Otitis, Arch. of Otolaryng. 55:68 (Jan.) 1952.
6. Jawetz, E.: Infections with Pseudomonas aeruginose Treated with Polymyxin B., Arch. Int. Med. 89:90, 1952.

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INDICATIONS FOR HYSTERECTOMY

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In the formative years of the surgical era in medicine, operative techniques were developed to deal with specific problems. Variations in these problems provided modifications of technique and gave rise to the many operative procedures known un-

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der the names of their originators. As a rule, certain indications were required and certain conditions insisted upon. With the improvement of the adjunctive sciences such as anesthesia, physiological chemistry, a broader understanding of shock and the means of combatting hemorrhage, the tendency in late years has been to generalize in the matter of pelvic surgery and, in particular hysterectomy.

We have reached the point now where we find the general surgeon treating all uterine pathology by abdominal hysterectomy and the gynecologist attempting to do most of his procedures vaginally. In the gynecological field there are groups in contention as to the best method of hysterectomy: total abdominal, subtotal abdominal and vaginal; and many statistical data have been exploited to maintain that one method serves less morbidity and mortality or greater comfort than another. We have attempted to maintain an open mind on this question, and over a period of years have attempted to suit the operation to the particular needs and physical circumstances. With a significant number of cases to review, we felt that we might evaluate this question of superiority of one method over another. Since the cases were all drawn from a single service and subjected to the same preoperative and postoperative care, a closer scrutiny might be made of any disparity in results.

TABLE 1

Operation	Number of Cases	Percentage
Total abdominal	380	51.48
Subtotal abdominal	43	5.79
Vaginal	319	42.73
Total	742	100.00

The distribution of cases is depicted in Table 1. The fortuitous numerical equality in abdominal and vaginal cases better serves our purpose of comparison.

The age distribution according to type of operation immediately brings to light an important indication. Table 2 reveals 80 per cent of the abdominal procedures were employed in patients under 50 years of age, while less than half the vaginal operations were performed in that age group. The reasons, of course, are almost self evident. In the advanced age group, the incidence of pelvic floor relaxation is much higher and the appropriate plastic procedures are combined with the removal of the uterus. In certain instances, the relaxation provided the primary indication for surgery and the uterus was removed in order to better cope with extensive prolapse. Vaginal procedures, too, are better suited to those patients requiring a less traumatic procedure because of cardiovascular-renal debilities or other infirmities of age.

TABLE 2
AGE DISTRIBUTION

Age Group	T.A.H.	Vaginal	Subtotal
20-30	21	....	2
31-40	114	56	19
41-50	176	116	16
51-60	49	91	1
61-70	13	42	2
71-80	1	2	1
Unknown	6	12	2
Total	380	319	43

TABLE 3
TOTAL ABDOMINAL HYSTERECTOMY

Operation	Number of Cases
Hysterectomy	90
Hysterectomy and bilateral salpingo-oophorectomy	133
Hysterectomy and unilateral salpingo-oophorectomy	106
Hysterectomy and appendectomy	42
Hysterectomy and herniotomy	7
Hysterectomy and vaginal plastic	2
Total	380

TABLE 4
SUBTOTAL HYSTERECTOMY

Operation	Number of Cases
Hysterectomy	10
Hysterectomy and bilateral salpingo-oophorectomy	16
Hysterectomy and unilateral salpingo-oophorectomy	5
Hysterectomy and appendectomy	10
Hysterectomy and cholecystectomy	1
Hysterectomy and bilateral salpingo-cophorectomy and colostomy	1
Total	43

One of the great advantages of the abdominal technique is the ready access to the adnexa. Table 5 demonstrates, how-

TABLE 5
VAGINAL HYSTERECTOMY

Operation	Number of Cases
Hysterectomy	66
Hysterectomy, anterior colporrhaphy and perineorrhaphy	194
Hysterectomy and perineorrhaphy	24
Hysterectomy and anterior colporrhaphy	4
Hysterectomy, anterior colporrhaphy, perineorrhaphy and bilateral salpingo-oophorectomy	8
Hysterectomy and unilateral salpingo-oophorectomy	9
Hysterectomy and bilateral salpingo-oophorectomy	2
Hysterectomy and vaginal obliteration	4
Hysterectomy and ovarian cystectomy	5
Hysterectomy and unilateral salpingo-oophorectomy and anterior and posterior colporrhaphy	2
Hysterectomy and unilateral salpingo-oophorectomy and perineorrhaphy	1
Total	319

ever, that the vaginal operation does not preclude reasonable surgical attack on tubes and ovaries. We deplore such adjunctive procedures of a magnitude to be classified as a "stunt." Nevertheless, the pelvic surgeon will occasionally encounter technical complications or unexpected pathology which will extend the scope of any individual case. It is valuable to remember that most of these situations can be met from the vaginal approach.

TABLE 6
PATHOLOGY OF ORGANS REMOVED VAGINALLY

Myomata	125
Chronic cervicitis	125
Adenomyosis	49
Polyps	17
Fibrosis uteri	13
Leukoplakic cervicitis	15
No pathology	5
Hyperplastic endometritis	5
Adenoacanthoma	4
Chronic salpingitis	4
Simple ovarian cyst	4
Serous cystadenoma	2
Endometriosis	2
Dermoids	2
Carcinoma of the cervix	1
Retained secundines	1

A survey of the surgical specimens shows myomata to have been present in 63 per cent of cases and to have been the principal surgical indication in all three groups. The survey disclosed, however, that there were thirteen instances of unsuspected malignancy. Most of these represented malignant degeneration of benign conditions. Routine preoperative curettage is of great value and is mandatory in bleeding cases of doubtful etiology. Nevertheless, short of subjecting all tissues to frozen section analysis, undetected malignancy will certainly appear in any group of cases.

TABLE 7
PATHOLOGY OF ORGANS REMOVED IN TOTAL ABDOMINAL HYSTERECTOMY

Myomata	314
Chronic cervicitis	65
Endometriosis	34
Simple ovarian cysts	61
Salpingitis	33
Benign ovarian cystomata	17
Adenomyosis	21
Polyps	19
TB salpingitis	4
Malignant ovarian cystadenoma	3
Sarcoma	1
Adenocarcinoma	1
Carcinoma of the cervix	1
Fibroma of the ovary	1
Dermoids	3
Brenner tumor	1
Cystadenomata	2

TABLE 8
PATHOLOGY OF ORGANS REMOVED BY SUBTOTAL PROCEDURE

Myomata	35
Salpingitis	12
Endometriosis	5
Adenomyosis	2
Endometrial carcinoma—Group I	1
Endometrial polyp	1
Carcinoma of rectosigmoid	1

Bleeding and urinary tract symptoms

TABLE 9
SYMPTOMATOLOGY

Symptom	Number of Cases	Percentage
Bleeding	345	46.49
Pain	235	31.67
Urinary Symptoms	196	26.41
Prolapse	148	19.67
Dysmenorrhea	117	15.63
Backache	107	14.28
Abdominal Mass	112	15.09
Asymptomatic	67	9.02
Secondary (Fatigue, dizzy spells, edema, etc.)	169	22.77

provided the principal symptoms in these 742 cases. In only 9 per cent was the indication for surgery discovered on routine examination. This symptomatology reflects that usually reported in such series.[1]

The bleeding was principally prolongation or exaggeration of menstrual flow. The urinary symptoms were chiefly those of incontinence or frequency.

In Tables 10 and 11 we find evidence to

TABLE 10
MORBIDITY

CAUSE	VAG. HYST.	T.A.H.	SUBTOTAL
Cystitis	45	27	2
Pyelitis	11	9	1
Pneumonitis	4	9	1
Upper respiratory infection	5	6	1
Dehydration	3	6	1
Undetermined	6	11	1
Wound infection	..	7	2
Pelvic abscess	2	..	..
Thrombophlebitis	2	2	..
Retained sponge	1	..	..
Peritonitis	..	4	..
Enteritis	..	1	..
Total	79	82	9
Percent Morbidity	24.76	21.59	20.93

TABLE 11
HOSPITAL DAYS

DAYS	10	10-15	16-20	21-25	25
T.A.H.	132	197	27	15	11
Vaginal	64	188	43	6	8
Sub-Total	7	30	2	2	2

show that very little choice exists between methods as far as morbidity rates are concerned. The 742 cases suffered an over-all morbidity of 22.9 per cent found mainly in urinary tract complications. The majority of cases were discharged from the hospital within satisfactory time limits, regardless of the technique employed. Two patients died, giving a mortality rate of 0.26 per cent. One occurred following a vaginal hysterectomy and plastic from a bronchopneumonia secondary to a retriperitoneal abscess. This death took place early in the study and might possibly have been avoided had antibiotics been in general use. The other succumbed on the second postoperative day from what today would be recognized as lower nephron syndrome, following a subtotal procedure. The surgical complications are listed in Table 12.

TABLE 12
SURGICAL COMPLICATIONS

SITE	VAGINAL	T.A.H.	SUBTOTAL
Ureter	1	1	..
Bladder	3	1	..
Bowel	..	1	1
Evisceration	..	1	1
Total	4	4	2

The morbidity rates in this series are comparatively low in reference to the general literature.[2, 3] The period covered by the study was from 1940 to 1952 and during this time antibiotics, early ambulation, and the establishment of blood banks were introduced as surgical improvements. Undoubtedly, these innovations influenced the outcome in these cases to no small extent.

The results of this twelve-year survey do not suggest any need for change in our thinking in regard to selection of procedure. Undoubtedly, the scope of vaginal hysterectomy could be broadened and some improvement in morbidity obtained.[4] However, the vaginal morbidity that might be avoided by abdominal approach may have been better served by a vaginal operation than any other. It is our contention that the procedure selected should be based upon existing pathology, physical capacity of the patient and the functional derangement present. We feel that sparing the cervix accomplishes no end, except in those instances where extensive residue of inflammation makes the total procedure more hazardous. It has not been our experience that removal of the cervix results in shortening, dyspareunia, scarring, or dryness. This opinion is shared by other authors.[5, 6]. If no other indication existed, the incidence of 3 per cent stump carcinoma in most cervical malignancy studies would suffice for the total operation.

We submit that a return to individualization of cases is worthy of re-emphasis and that the use of a variety of techniques enhances rather than detracts from the quality of the surgeon's accomplishments.

CONCLUSION

1. A series of 742 cases of hysterectomy for nonmalignant conditions is presented.

2. A variety of procedures is available to the experienced operator without needless increase in morbidity or mortality.

3. No superiority is demonstrated in favor of one operative procedure over another.

4. The patient's advantage is best served by adapting the operation to her existing pathology and physical condition.

REFERENCES

1. Harden, A. S.: J. Med. Soc. N. Jersey 45:548 (Nov.) 1948.
2. Weis, W. C.: Am. J. Ob. & Gynec. 56:1151, 1948.
3. Curtis, W. W., Suckow, Earl, and Huffman, J. W.: Am. J. Ob. & Gynec. 59:989, 1950.
4. Allen, Edward: Am. J. Ob. & Gynec. 57:697, 1949.
5. Crawford, J. B., Collins, C. G., and Weed, J. C.: Surgery, Gynec. & Ob. 88:465, 1949.
6. Aldridge, A. H. and Meredith, R. S.: Am. J. Ob. & Gynec. 59:748, 1950.

CURRENT APPROACHES TO THE CONTROL OF POLIOMYELITIS

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NEW ORLEANS

Although few would question the concept that poliomyelitis constitutes a problem which justifies serious interest in its control, it may be worthwhile to consider briefly the actual scope and nature of the problem presented.

In the first place, poliomyelitis is relatively new as a disease entity of importance. While, in retrospect, Louisiana enjoys the dubious honor of having experienced what was probably the first real outbreak of the disease in this country—a small episode among young children in West Feliciana Parish in the 1840's[1]—epidemics in the United States did not begin to occur until the 1890's and the first nationwide outbreak of great magnitude was that of 1916. Although the increasing recognition and reporting of milder cases of poliomyelitis must be borne in mind when one compares current with past incidence of the disease, there is little doubt but that, over the past fifty years, a major increase has taken place on a nationwide basis. To illustrate this it may be mentioned that the average annual incidence rates per 100,000 population in the United States were 3.9 in the period 1920-1924 and 13.8 in 1944-1948.[2]

Secondly, although relatively spared until recently, the South is now experiencing a sharp increase in epidemic occurrence. The relative sparing in the past is suggested in Table 1 which distributes northern and southern counties by average annual incidence rates of poliomyelitis in the period 1932-1946. Only about 37 per cent of southern counties had rates in excess of 5 per 100,000 population while, for the northern counties, the figure was about 74 per cent. The new turn of events in the South is underlined by the recent severe outbreaks which have occurred, to mention only a few, in North Carolina, Texas, Mississippi, and, in the past two years, Louisiana. Unless blocked by effective control measures, this new trend in the South seems certain to continue.

A third point worthy of note is the shift in age selection of cases. Because it eliminates the variable inherent in morbidity reporting, a study of the proportionate distribution of fatal cases by age may best serve to illustrate this shift. Selected data from the North and the South are shown in Table 2. The shift in proportion of fatal cases to the older age groups in both sections of the country is evident. It is interesting to note, however, that the shift has progressed further in the North than in the South. Aside from its implications to the epidemiology of poliomyelitis, i. e. that the average age of first exposure to infection is increasing, this shift is important to the scope of poliomyelitis problem because of the well established relation between age and severity of disease. This is illustrated by figures from the 1949 epidemic in New York City, shown in Table 3, which indicates a marked correlation between increasing age and frequency of bulbar paralysis and of death among reported cases of poliomyelitis.[3] Thus, as this shift progresses, we may expect an increasing proportion of severely paralyzed and fatal cases.

Having seen that poliomyelitis is a problem of some current magnitude and that it

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TABLE 1

PERCENTAGE DISTRIBUTION OF NORTHERN AND SOUTHERN U. S. COUNTIES BY AVERAGE ANNUAL POLIOMYELITIS INCIDENCE RATES PER 100,000 POPULATION (1932-1946)*

Counties	Number of Counties	Per cent of counties with indicated rates				Total Percent
		0-4	5-9	10-19	20 +	
Northern	1948	36.1	38.7	21.3	3.9	100.0
Southern	1147	62.8	29.2	7.4	0.6	100.0
U. S. Total	3095	45.9	35.2	16.1	2.7	99.9

*—Adapted from Gilliam, et al[2]

TABLE 2

PROPORTIONATE DISTRIBUTION BY AGE OF POLIOMYELITIS DEATHS IN NORTHERN AND SOUTHERN STATES IN THE PERIODS 1920-24, 1930-34, 1940-44*

Years	Northern States †						Southern States ‡ (white only)					
	Total Deaths	% of deaths in age groups				All Ages	Total Deaths	% of deaths in age groups				All Ages
		0-4	5-9	10-19	20 +			0-4	5-9	10-19	20 +	
1920-24**	1033	39.4	21.4	22.4	16.8	100.0	232	76.8	9.1	7.3	6.9	100.1
1930-34	1124	21.2	26.0	31.9	20.8	99.9	371	59.6	19.2	12.9	8.4	100.1
1940-44	622	5.9	20.9	41.2	32.0	100.0	399	37.8	18.8	27.1	16.3	100.0

*—Adapted from figures presented by Dauer[4].
†—Conn., Mass., N. Y. (exclusive of New York City), N. J., and Minn.
‡—Ala., Ga., Tenn., Va., Miss.
**—1920-24 figures based only on 3 states (Mississippi, Tennessee and Virginia).

TABLE 3

CASE FATALITY AND CASE PARALYTIC RATES FOR POLIOMYELITIS, BY AGE, IN NEW YORK CITY, 1949*

Age Group (Years)	Number of Cases Reported	Per cent of cases		
		Paralyzed (All Forms)	Paralyzed (Bulbar)	Fatal
0-4	709	71.8	11.7	4.2
5-9	775	56.3	16.8	6.1
10-14	434	53.0	18.4	5.3
15-19	202	62.9	21.8	17.3
20 & Over	326	61.1	16.9	13.5
All	2446	61.3	16.0	7.3

*—Adapted from Greenberg et al[5]

is increasing in importance, especially in the South, we are ready to consider the question of control. This can be broken down, as in the case of any infectious disease, into a number of well defined approaches. These are summarized in Table 4.

An obvious first main approach is an attempt to prevent infection. To the extent that infection is not prevented, our second objective is to minimize its consequences. This objective may be sought by at least four approaches. One is to recognize and,

TABLE 4

PRINCIPAL APPROACHES TO THE CONTROL OF POLIOMYELITIS

Overall Objective	Specific Approach
1. Prevent Infection	Attack on sources of infection
2. Minimize consequences of infection	a. Attack on factors operating to convert infection into disease b. Passive immuno-prophylaxis (e. g. gamma globulin) c. Active immuno-prophylaxis (e. g. vaccine) d. Specific therapy
3. Acquisition of further knowledge	Continued laboratory and epidemiologic investigations

when possible, mitigate those factors which determine that infection in a given instance will evolve into a case of overt disease. It is well recognized, of course, that perhaps no more than once in 100 times does infection result in disease. A second approach, when exposure threatens, is to utilize passive, transient immuno-protection in the form of gamma globulin. Even better, when and if it becomes available, would be a third approach, i. e., the utilization of active, more enduring immuno-protection as induced by a true vaccine. For the sake of completeness one should also mention as a fourth approach, in the event that disease is not prevented, the possibility (yet to be realized) of specific therapy. And finally, one hardly needs to be reminded that all of the foregoing approaches are limited by our present incomplete state of knowledge and that, very pertinent to the problem of control, are continuing efforts to expand our knowledge.

In the following, these approaches will be taken up in order. In the discussion of each, an effort will be made to review briefly current knowledge, to point out specific practical measures for control which can now be taken, and, when indicated, to speculate as to measures which may become practical in the future.

THE PREVENTION OF INFECTION

The prerequisite for the prevention of infection is specific knowledge as to what are the sources and the principal modes of transmission of poliomyelitis viruses. Innumerable investigations have established that, with the exception of certain flies[6, 7] and roaches,[8] man constitutes the only animate source of virus. The great stability of the viruses in the free state, however, suggests that environmental contamination by man may result in important inanimate sources. Perhaps because of the inability of the viruses to withstand drying, rather diligent efforts to recover the agents from house dust collected from rooms occupied by polio cases have been unsuccessful.[9] Sewage has often been shown to contain virus,[10, 11] and would seem to constitute the most important inanimate source. However, proper treatment of sewage (as by the activated sludge method) destroys the virus[12] and the levels of free chlorine commonly present in community water supplies are adequate to protect such supplies against sewage contamination.[13] While streams, swimming waters, and unprotected private water supplies remain as possible and even probable sources of sporadic infections, man himself emerges as the principal source of infection.

How long the individual human source endures is a matter of some moment. Overt cases are most capable of transmitting the disease by contact during the period of from three or four days before onset of illness to six or seven days after onset,[14] and it is during this same period that, chiefly in cases of paralytic disease, virus is most apt to be present in the oropharyngeal secretions.[15] However, virus is regularly present in the stools of all infected persons and for a much longer period, having in some instances been detected ten to twelve weeks after onset of illness.[16] It is possible that the amount of virus shed in the stool varies, being at a maximum during the period of apparent case infectivity or communicability. This point merits investigation. For the sake of completeness, it should also be pointed out that recent evidence obtained in chimpanzees[17] and cynomolgous monkeys[18] suggests that there may be a period of viremia in man preceding overt signs of illness. No evidence exists as yet, however, which suggests that virus in the circulating blood is important to transmission.

A further problem is recognition of the individual sources. Clinically evident infections are relatively simple but constitute but a small fraction of all infections. The most important fact, in this connection, is that the frequency of infection in asymptomatic persons is related to their degree of proximity to overt cases. This has been evident in several studies but is perhaps best illustrated by observation made in Chicago in 1945 and 1946,[19] and summarized in Table 5, which revealed the proportion of infected persons under 21 years of age to decrease in direct relation to their degree of contact with the overt, index cases. Among

TABLE 5

SUMMARY OF RESULTS OF STOOL EXAMINATIONS FOR VIRUS OF POLIOMYELITIS CONTACTS UNDER 21 YEARS OF AGE IN CHICAGO, ILLINOIS, 1945[1]

	Virus Present	Virus Not Found	Total	Percent Positive
All contacts[2]	26	20	46	57
Household contacts	17	6	23	74
Extra-household	9	14	23	39
Non-Contacts	2	16	18	11
Controls	0	5	5	0

[1]Adapted from Gordon, F. B., *et al*[19]

[2]A contact is a person who had contact with an active case within the period of three days before, to three days after onset.

contacts, furthermore, young individuals are more likely to be infected than older ones. Brown and Ainslie,[20] for example, studied 22 persons in 3 polio households and isolated virus from the stools of 12 persons who included all of the 10 individuals younger than 12 years of age. Finally, among the general population and without relation to overt cases, it seems evident that most infected persons will be found in the young age groups.

The exact mode of transmission from infected to noninfected persons is still not firmly defined. Rather obviously, in regions where flies have ready access to human feces as in certain rural parts of this country and in many backward parts of the world[7] flies, and perhaps roaches, may play a dominant role. In such areas, however, polio is endemic rather than epidemic. While any of the many other indirect mechanisms by which a stable infectious agent present in the feces may reach the mouth of a susceptible individual probably operates on occasion, there is a growing body of evidence suggesting that personal contact is important in epidemic spread. Typical of this are the studies by Casey and Associates in Walker County, Alabama, and Chicago;[14, 19, 21] the household studies by Brown and Ainslie already mentioned;[20] and the demonstration in New York City during the 1949 outbreak of an attack rate among household associates of cases 15 times greater than that in the city at large.[5] It seems likely, moreover, that intimate physical contact rather than airborne transmission is chiefly involved. On the one hand, school attendance has not been shown to influence disease occurrence,[5, 22] and out-of-door play contact of summertime seems incompatible with respiratory spread. On the other hand, the poor personal hygiene of young children, their scant summer clothing, and their hand-to-mouth play habits make transfer of fecal contamination not only possible but probable.

With this background of information one can say that measures intended to minimize the occurrence of infection in most parts of the United States should focus on young individuals, under age 10 or 12, and should relate especially to their promiscuous physical contact. As a general measure, training of children in personal hygiene, especially handwashing after the toilet, is to be recommended. Also, while usual play contacts should not be ordinarily be discontinued, new contacts should definitely be discouraged during the polio season and especially as an epidemic appears imminent. This means avoidance of public playgrounds and of crowded swimming places (fecally contaminated water is an added hazard in this case), discouragement of large children's parties and of family visits out of the neighborhood, and a restriction on trips to, through, or from areas of increased incidence. Certain other steps are indicated with reference to individual overt cases. Not only should the cases themselves be isolated until seven to ten days have passed after onset (and careful excreta disposal practiced for a still longer period), but a modified quarantine might reasonably be placed on child-contacts of cases, especially those in the same household. This should be maintained for from two to four weeks. Except in rural areas where school and school buses constitute a principal oppor-

tunity for contact between children, schools need not be closed, or their opening delayed. And, finally, it goes without saying that usual measures of environmental sanitation which relate to spread of fecal contamination should be rigidly maintained in force.

MEASURES TO MINIMIZE THE CONSEQUENCES OF INFECTION

While full implementation of the measures just outlined should materially reduce the spread of polio viruses, it would not constitute a complete control program. Amongst adults and noncontact children there would remain numerous unrecognizable sources of infection which would not be adequately controlled. For this reason, the continued occurrence of infections must be expected and our program must include measures to minimize their consequences.

Factors predisposing to paralytic disease: It is impossible in the available time and space to review adequately all of the evidence which bears on the question as to why a certain few individuals of the many infected are singled out to be afflicted with serious disease. Some of the partial answers to this question fail to suggest corresponding counter measures for control. In this category are such agent factors as size of infecting dose and virulence of the infecting virus strain,[23] and such host factors as genetic background,[24] sex, age[5, 25] and pregnancy.[26] In the case of certain other factors such as nutritional state and antecedent or concomittant heterologous infection[27] there is as yet too little knowledge.

There remain certain factors, however, which clearly seem to influence the course of infection and about which something can be done. Although opposing voices are still to be heard,[28] the best available evidence indicates that tonsillectomy within the previous thirty days heavily predisposes to the development of bulbar polio and possibly to spinal paralytic disease as well.[29] It is of special interest that a leading otolaryngologist has very recently espoused this view.[30] That recent inoculations, especially with vaccines commonly used in childhood, may determine the site of paralysis and even increase the risk of paralysis (perhaps by a factor of 2 or 3) has become generally recognized although the mechanism involved is still uncertain.[31, 32] Finally, chilling, fatigue, and physical activity[33] have been commonly indicted. Particularly striking has been the evidence that usual activity about the home,[34] and the fatigue associated with prolonged ambulance travel to a distant polio center[35, 36] on or shortly after the day of onset of illness is associated with aggravation of the disease.

The foregoing evidence would seem to dictate the following specific recommendations. Elective tonsillectomies should not be performed during a period beginning at one month prior to the anticipated polio season and continuing until the seasonal rise has terminated. The same recommendation holds for immunization procedures with two exceptions: routine immunizations of children in the first year of life and any indicated emergency immunizations should be given. Children, in general, should avoid overfatigue from physical exertion and chilling during the polio season. Also, parents should watch their children with care and, at the first sign of febrile illness, put them to bed until, with a physician's help, a diagnosis can be established. And, finally, when polio is suspected, immediate transport to a distant hospital should be discouraged unless actual signs of bulbar involvement are detected.

Passive immuno-prophylaxis: Although specific antibody after onset of illness is of no value, there is ample evidence that it has a prophylactic effect if given earlier. For human use the most practical source of antibody against all three types of polio virus appears to be gamma globulin prepared from large pools of human plasma, specifically that prepared by the Red Cross. In the laboratory it was shown that such gamma globulin is possessed of significant amounts of neutralizing antibody of each type[37] and that, in adequate dosage, it did in fact protect monkeys against challenge although permitting the challenged host to develop active response to the challenge infection.[38, 39]

With this background of information,

the now famous human trials were conducted, in 1951, in Utah, and in 1952, in Texas and Iowa.[40] These took place in three separate communities, in each case early in the course of a severe epidemic, and included a total of 54,772 children between the ages of 1 and 11 years. Half of these children received from 4 to 11 ml. of gamma globulin, depending on their weight, and the remainder received a gelatin placebo and served as controls. Analysis of the results, summarized in Table 6, showed that during the first week after inoculation the numbers of cases in both groups were nearly equal, although the cases in the gamma globulin group were definitely milder. During the second through the fifth week there was a marked difference, with many fewer cases in the gamma globulin group. Beyond the fifth week no difference in numbers could be detected. From the data presented one may conclude that inoculation of 27,386 children with gamma globulin prevented 38 cases of polio from occurring and probably exerted a favorable influence on some 17 of the 26 cases which occurred in spite of gamma globulin. It may be presumed, although the evidence has not yet been presented, that many of the protected children also safely acquired an active immunity.

TABLE 6

SUMMARY OF RESULTS IN HUMAN TRIALS OF GAMMA GLOBULIN IN IMMUNO-PROPHYLAXIS OF POLIOMYELITIS*

Interval After Inoculation (weeks)	Number of cases in group			Per cent of Total in Gamma Globulin Group
	Gamma Globulin	Gelatin	Total	
1	12	16	28	42.9
2	3	23	26	11.5
3	2	8	10	20.0
4-5	1	7	8	12.5
6-7	6	8	14	42.9
8 +	2	2	4	50.0
Total	26	64	90	28.9

*—Adapted from Hammon, *et al*[40]

The foregoing evidence provides a scientifically sound basis for the recommendation that gamma globulin be given as a prophylactic measure when exposure threatens. The practical difficulties related to complying with this recommendation are great, however. The most cogent is that of supply and expense of gamma globulin. On the average, one prophylactic dose is derived from one pint of blood. Although the Red Cross, which has accepted the responsibility, is making every possible extra effort, the collection of blood is falling far behind the estimated needs. A second problem is in deciding what degree of threatened exposure warrants the use of gamma globulin. Ideally, perhaps, all children under 12 years of age should receive it at the outset of the anticipated polio season. Actually, because of short supply, it must be limited to young children in communities actually experiencing an epidemic or in households in which a case has already been diagnosed. A third difficulty derives from the transient nature of the protection afforded and the lack of a ready test for active immunity. Unless a child can be shown to have become immune, a second inoculation may be desirable in the course of a long drawn out epidemic and, in any event, would be required in a subsequent epidemic year.

All in all, gamma globulin leaves much to be desired as an immuno-prophylactic agent against polio and, when the total cost is taken into account, one may wonder if its use on a mass basis is truly justified.

Active immuno-prophylaxis: It hardly needs to be argued that a safe method of producing effective and long lasting active immunity against the three antigenic types of polio virus would constitute the ideal single measure of control. This has been, in fact, a long sought goal. It may be said that early efforts to achieve this goal were

unsuccessful for two reasons; the vaccines were unsafe because the viral antigen was incompletely inactivated, and also they were not antigenically polyvalent. Modern efforts go back only to the recognition of distinct antigenic types of virus which took place in the early 1940's.

Recent progress has been reviewed and a major new step along the road has been announced by Salk.[41] This new step rests on three major contributions by other workers. First, Morgan,[42] in 1948, showed that formalin-inactivated virus could be made to immunize monkeys. This involved multiple inoculations and a crude antigen made from the only then available source, CNS tissue from infected monkeys. Second, Freund[43] demonstrated the remarkable enhancing effect on immune response which results when an antigen is incorporated in a stable water-in-mineral oil emulsion, and third, Enders and co-workers[44] made available a relatively clean and nearly unlimited source of viral antigen when they demonstrated that polio viruses of all three types could be propagated *in vitro* in suitable tissue cultures. Taking advantage of these facts and also personal experience derived from work with influenza vaccines,[45] Salk and co-workers have produced a polyvalent vaccine in which formalin-inactivated polio viruses of tissue culture origin and of all three types have been incorporated in an oily emulsion of Freund type. Preliminary tests have been made in man with this vaccine given intramuscularly and also with aqueous monovalent vaccines given intradermally. While gratifying results were obtained with the Type 2 aqueous vaccine, chief interest centers in the polyvalent emulsion-type vaccine. Although 90 persons have received such vaccine and suffered no immediate ill effects, serologic work has not been completed. It may be said, however, that most of the 16 persons whose sera have been most completely tested manifested a very satisfactory rise in titer of neutralizing antibody to all three virus types.

The foregoing is but a very early progress report on what is an obviously very hopeful lead. Before a vaccine of the type described can be recommended for indiscriminate use, much more work must be done. First and foremost, safety must be established. While laboratory tests demonstrating the complete noninfectivity of the viral antigens seem an adequate safeguard against the inadvertent production of poliomyelitis, the development of undesirable reactivity to nonviral components of the vaccine must be considered. This has special reference to traces of organ-specific antigen derived from the monkey kidney tissue in which the viruses were propagated. While Salk is considering this possibility and early tests for sensitivity to kidney protein have been negative, larger numbers of persons and a considarably longer period of observation are indicated before an answer can be accepted. Second is the actual effectiveness of the immunity produced. While all available experimental evidence suggests that antibody titers of the magnitude observed are associated with solid immunity to challenge infection, epidemiologic evidence of resistance to natural infection must be obtained in an actual field trial. Such a trial should also be helpful in defining the stability of the vaccine and the conditions of handling necessary to the preservation of its potency. Finally, there is the problem which only the passage of time can answer, i. e. the duration of effective immunity. Related to this is the question of the effect on the immune state of subsequent natural contact with polio viruses. As long as such contact is a common event, a possible resulting booster effect may serve to prolong indefinitely the immunity originally induced by the vaccine.

There is still another and, theoretically, possibly superior approach to the problem of a vaccine. This is analogous to the highly successful vaccines now being employed against small pox and yellow fever and would take the form of the development of living but avirulent strains of polio viruses which could be used to induce silent, immunizing infections by simple feeding. Using a Type 2 strain avirulent for monkeys, Koprowski and co-workers[46, 47] have already

infected approximately 80 nonimmune human subjects without untoward results. It must be pointed out that the problem of safety-testing vaccines of this type seems nearly insurmountable since it would require very large numbers of proven nonimmunes (probably children). Also, suitably avirulent strains of Types 1 and 3 remain to be developed. Nonetheless, should the immunity following infection with such strains be comparable to that following natural infection, the ultimate rewards would be incalculable.

In resumé, one can make no recommendation for artificial active immunization as a currently available control measure. There is ample reason to predict, however, that in a matter of but a few years effective vaccines against poliomyelitis will be generally available and will completely replace gamma globulin as an immuno-prophylactic measure.

THE ACQUISITION OF FURTHER KNOWLEDGE

It should have been evident in the discussion so far presented that much which may be pertinent to the control of poliomyelitis remains to be learned. The need for and the possible avenues of further research related to the problem of immuno-prophylaxis have been already adequately indicated. The following discussion will deal only with questions related to virus reservoir and transmission and to factors which predispose to the evolution of paralytic disease.

To give us the proper perspective it seems pertinent to begin with a few general statements. First, much of what we now know about the distribution and transmission of poliomyelitis derives directly from observations made in relation to cases of overt, clinically recognizable infections which, it will be recalled, are believed to constitute fewer than 1 per cent of all infections. Second, efforts to isolate virus from suspect human and environmental sources and to study the presence and distribution of seroimmunity have been relatively few in number because of the necessity, until very recently, of using a very expensive experimental host—the monkey—in nearly all work of both types, usually a minimum of two monkeys per specimen tested. And, third, the recent development by Enders and his group[44] of techniques by which virus isolations and serologic tests can be made in inexpensive test tube cultures of appropriate living tissues has placed a potent new tool for epidemiologic investigation in the hands of a potentially great number of workers, new and old.

The possible applications of this new epidemiologic tool, the test tube culture, are very numerous and it will be possible to mention only a few. In the first place, type-specific etiologic diagnosis may become practicable for clinically apparent infections. This would greatly increase the reliability of our knowledge about the occurrence of actual disease. In the second place, better and more numerous studies can be made of the escape of virus from the human host, both with respect to avenue of escape and the time during which the host sheds virus. Knowledge of this sort is basic to the intelligent management of known infected persons. In the third place, a much more extensive search can be made for the virus in the animate and inanimate environment. Information so acquired might provide direct evidence as to the principal mechanisms involved in virus transmission.

Finally, and perhaps most important of all, attempts can be reasonably undertaken to learn more about the silent immunizing infections which, unknowingly, nearly all of us experience before we reach adulthood. By periodic examination of a nonimmune segment of our population (newborn infants would seem nearly ideal) it should be possible to learn something about when and under what circumstances these silent infections are acquired. Just such a study, it may be added, is now being inaugurated by the present author and his colleagues in Southern Louisiana. Information gained in this and other similar studies should help complete our knowledge as to virus dissemination. Also, when compared with similar information related to overt cases, it should bear directly on the problem of further defining those factors which determine

whether or not, in an individual case, infection will progress to disease.

SUMMARY

The increasing importance of poliomyelitis, especially in the South, stems both from a numerical and relative increase in cases and a trend to occurrence in older age groups in which disease is usually more severe. Because of this, control becomes all the more important.

An effective control program combines several approaches. Present knowledge permits the following recommendations with respect to each of the several approaches:

1. Measures to minimize the occurrence of infection should focus on children under 12, in general, and especially on those who are household or play contacts of known cases of poliomyelitis; and they should stress in particular the limitation of intimate physical contact. Specific measures as the polio season approaches would be:
   a. Avoidance of any new play contacts, especially as at public playgrounds and swimming places, at children's parties, and on visits and trips.
   b. Reasonable isolation of overt cases.
   c. Modified quarantine for household contacts (and possibly close play contacts) of overt cases.
   d. Permit schools to function except in rural areas where buses bring children into close contact.
2. Measures to minimize the consequences of infection would include:
   a. Avoidance of factors predisposing to the development of paralytic disease such as elective tonsillectomy and routine immunizations (children under 1 year excepted), excessive physical activity, chilling, and, in the first days of suspect illness, normal activity and even the stress of prolonged travel by ambulance to the hospital.
   b. Immuno-prophylaxis, now available only in passive form as gamma globulin, which should be employed only for children in communities actually experiencing an epidemic or in households in which an overt case has just occurred. This should be replaced by vaccine when this becomes available.
3. Continuing pursuit of new knowledge with special reference to mechanisms of virus reservoir and transmission and to factors which predispose to paralytic disease, now made potentially more productive by the introduction of the test tube tissue culture as a tool for virus isolation and serology.

REFERENCES

1. Paul, John R.: Observations on the history of poliomyelitis, Bull. Ayer Chemical Lab., 4:21, (May) 1951.
2. Fox, John P.: Present Status of Communicable Diseases in the South, Proceedings of the Annual Meeting, Southern Branch, A.P.H.A., 12-19, 1950.
3. Gilliam, A. G., Hemphill, F. M., and Gerende, J. H.: Average poliomyelitis incidence reported in the counties of the United States, 1932-1946, Public Health Reports, 64:1575, 1949.
4. Dauer, C. C.: Trends in the age distribution of poliomyelitis in the United States, Am. J. Hyg. 48:133, 1948.
5. Greenberg, M., Siegel, M., and Magee, M. C.: Poliomyelitis in New York City, 1949, New York State J. Med., 50:1119, 1950.
6. Ward, R., Melnick, J. L., and Horstman, D. M.: Poliomyelitis virus in fly-contaminated food collected at an epidemic, Science, 101:491, 1945.
7. Ward, R.: Poliomyelitis and Coxsackie viruses from Egyptian flies, Fed. Proc. 11:486, (March) 1952 (An Abstract).
8. Syverton, J. T., et al.: The cockroach as a natural extrahuman source of poliomyelitis virus, Fed. Proc. 11:483, (March) 1952 (An Abstract).
9. Faber, H. K., Dong, L., and Silverberg, R. J.: Search for poliomyelitis virus in house dust and study of effects of drying on viability of virus, J. Inf. Dis., 88:180, 1951.
10. Melnick, J. L.: Poliomyelitis virus in urban sewage in epidemic and in non-epidemic times, Am. J. Hyg., 45:240, 1947.
11. Rhodes, A. J., et al.: Poliomyelitis virus in urban sewage; an examination for its presence over a period of twelve months, Canad. J. Pub. Health, 41:248, 1950.
12. Carlson, H. J., Ridenaur, G. M., and McKahn, C. F.: Effect of activated sludge process of sewage treatment on poliomyelitis virus, Am. J. Pub. Health, 33:1083, 1943.
13. Lensen, S. G., et al: Inactivation of partially purified poliomyelitis virus in water by chlorination. Am. J. Pub. Health, 39:1120, 1949.
14. Casey, A. E.: Observations on an epidemic of poliomyelitis, Science, 95:359, 1942.
15. Howe, H. A., and Bodian, D.: Isolation of poliomyelitis virus from the throats of symptomless children, Am. J. Hyg., 45:219, (March) 1947.
16. Horstmann, D. M., Ward, R., and Melnick, J. L.: The isolation of poliomyelitis virus from human extraneural sources: persistence of virus in stools after acute infection, J. Clin. Invest., 25:278, 1946.
17. Horstmann, D. M.: Poliomyelitis virus in blood of orally infected monkeys and chimpanzees, Proc. Soc. Exp. Biol. & Med., 79:417, 1952.
18. Bodian, David: Pathogenesis of poliomyelitis in

normal and passively immunized primates after virus feeding, Fed. Proc., 11:462, (March) 1952.

19. Gordon, F. B., Schabel, F. M., Jr., Casey, A. E., and Fishbein, W. I.: Laboratory study of epidemiology of poliomyelitis, J. Infect. Dis. 82:294, 1948.

20. Brown, G. C. and Ainslie, J. D.: Relationship between serum antibodies and subclinical infections with poliomyelitis virus, J. Exper. Med. 93:197, 1951.

21. Casey, A. E., Fishbein, W. I., and Bundesen, H. N.: Transmission of poliomyelitis by patient-to-patient contact, J. A. M. A. 129:1141, 1945.

22. Francis, T., Jr., and Brown, G. C.: Studies of the distribution of poliomyelitis virus, in rural schools following an epidemic, J. Inf. Dis. 82:163, 1948.

23. Sabin, A. B. and Stiegman, A. J.: Poliomyelitis virus of low virulence in patients with epidemic "summer grippe or sore throat." Am. J. Hyg., 49:176, 1949.

24. Herndon, C. N.: A twin family study of susceptibility to poliomyelitis, Am. J. Genetics, 3:17, 1951.

25. Horton, R. J. and Rubenstein, A. D.: The age distribution of poliomyelitis in Massachusetts, New England J. Med., 239:169, 1948.

26. Fox, M. J. and Belfus, F. H.: Poliomyelitis in pregnancy, Am. J. Obst. & Gyn., 59:1134, 1950.

27. Ingalls, T. H.: Upper respiratory infection as a factor influencing susceptibility to poliomyelitis, New England J. Med., 245:197, 1951.

28. Cunning, D. S.: Poliomyelitis-tonsillectomy survey-year 1949, Laryngoscope, 60:615, 1950.

29. Anderson, G. W., *et al.*: The risk of poliomyelitis after tonsillectomy, Ann. Otol. Rhin. & Laryng. 59:602, 1950.

30. Galloway, T. C.: Relationship of tonsillectomy to poliomyelitis, J. A. M. A. 151:1180, (April) 1953.

31. Anderson, G. W., and Skaar, Audrey E.: Poliomyelitis occurring after antigen injections, Pediatrics 7:741, 1951.

32. Drake, R. M.: Poliomyelitis and parenteral injections; review of recent literature, Calif. Med. 77:22, 1952.

33. Russell, W. R.: Poliomyelitis: pre-paralytic stage and effect of physical activity on severity of paralysis, Brit. M. J. 2:1023, 1947.

34. Horstmann, D. M.: Acute poliomyelitis: relation of physical activity at time of onset to course of disease, J. A. M. A. 142:236, 1950.

35. Hunley, H. C., Jr.: Transportation of acute poliomyelitic patients, U. S. Armed Forces M. J. 3:1337, 1952.

36. Brahdy, M. B.: Effect of transportation on severity of acute poliomyelitis, J. A. M. A. 146:772, 1951.

37. Bodian, D.: Neutralization of three immunological types of poliomyelitis virus by human gamma globulin, Proc. Soc. Exp. Biol. & Med. 72:259, 1949.

38. Bodian, D.: Experimental studies on passive immunization against poliomyelitis. I. Protection with human gamma globulin against intramuscular inoculation and combined active and passive immunization, Am. J. Hyg., 54:132, 1951.

39. Bodian, D.: Experimental studies on passive immunization against poliomyelitis. II. The prophylactic effect of human gamma globulin on paralytic poliomyelitis in Cynomolgous monkeys after virus feeding, Am. J. Hyg. 56:78, 1952.

40. Hammon, W. McD., Coriell, L. L., and Stokes, J. L., Jr.: Evaluation of Red Cross gamma globulin as a prophylactic agent for polio, J. A. M. A. 150:739, 1952.

41. Salk, J. E.: Studies in human subjects on active immunization against poliomyelitis. I. A preliminary report of experiments in progress, J. A. M. A. 151:1081, 1953.

42. Morgan, I. M.: Immunization of monkeys with formalin-inactivated poliomyelitis viruses. Am. J. Hyg., 48:394, 1948.

43. Freund, J.: The effect of paraffin oil and mycobacteria on antibody formation and sensitization: A review, Am. J. Clin. Path. 21:645, 1951.

44. Enders, J. F.: General preface to studies on the cultivation of poliomyelitis viruses in tissue culture, J. Immun. 69:639, 1952.

45. Salk, J. E.: Use of adjuvants in studies on influenza immunization. 3. Degree of persistence of antibody in human subjects two years after vaccination, J. A. M. A. 151.1169, 1953.

46. Koprowski, H. *et al.*: Immune responses in human volunteers upon oral administration of a rodent-adapted strain of polyiomyelitis virus, Am. J. Hyg. 55:108, 1952.

47. Koprowski, H., Jervis, G. A., Norton, T. W., and Nelsen, D. J.: Further studies on oral administration of living polio virus to human subjects, Proc. Soc. Exp. Biol. & Med. 82:277, 1953.

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THE PLACE OF THE PHYSICIAN IN THE NINE-POINT PROGRAM OF THE PRESIDENT OF THE AMERICAN MEDICAL ASSOCIATION

At the 102d annual meeting of the American Medical Association, Dr. Edward J. McCormick of Toledo, Ohio, president of the American Medical Association, outlined a nine-point program for further improvement in the nation's medical care.

The first four proposals depend for their development upon organizational activities. The first is the problem of distribution of doctors. The second is the need in certain localities for twenty-four hour emergency call systems. The third is the operation by every medical society of a strong and fearless mediation committee to hear patients' complaints. The fourth is the development of physician-hospital committees by state and county medical societies to work toward better relations in local communities between the local medical society and the hospital organizations. These are all matters of which the thoughtful physician would have no criticism. However, while the degree of success in each one of these projects depends upon the amount of time and help given by the membership, the initiation of these several enterprises is dependent primarily upon the governing bodies of the societies.

The last five points are dependent upon the initiative and thoughtful cooperation of the individual physician.

One of these is the desire to develop and expand voluntary health insurance. Furtherance of this type of insurance can be greatly assisted by the enthusiastic cooperation of the physician. This applies to accuracy in reporting claims, to explanation of the workings of these plans to the patient, and to stimulating the formation of such types of protection as will lighten the financial burden of catastrophic illness, and will provide for coverage of older age groups. Voluntary health insurance is one of our best answers to the people who clamor for state medicine. Let us see that its benefits are spoken loudly.

The sixth point in Dr. McCormick's plan is that local societies should encourage each individual member to participate in some form of civic undertaking. The physician should render health leadership in service clubs, fraternal organizations, parent-teacher groups, church associations, and unions. With such diligence in activity, the average citizen would again look to the physician for guidance, rather than listen to the advice of some paid agitator.

In his seventh point, Dr. McCormick reminds us that every doctor must be brought to realize that good public relations for Medicine begins in his or her office—that the way they treat the patients reflects for

good or ill upon the entire profession. Too often, the whole profession suffers when irresponsible members of the profession make unjust charges for services, refuse urgent night calls, or fail to respond to obvious emergencies.

The relation of the individual physician to the Press is of more importance now than ever in our history. The medical society should set the pattern for cooperation with those who constitute the Press. It should encourage the presentation of Medicine's story in its proper light. Sooner or later, almost every physician will have contact with the Press, and it is in his own interests and in that of the Society to follow the pattern outlined.

The ninth point is one in which a plea is made for unity within the profession. Our president is distressed by signs of regression toward petty wrangling, charges and countercharges, and divisive activities by various groups within the profession. He explained that constructive criticism has a universally recognized place within any democratic group, but once that group has taken a majority action on a matter, the dissenters should be willing to accept the will of the majority, and allow all medical enterprises to go forward with singleness of purpose and unity of action, without which success in these troubled times is not possible.

The message from Dr. McCormick's speech is that there is no place for a self satisfied attitude in the public relations of Medicine today.

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ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ABSTRACTED MINUTES HOUSE OF DELEGATES

May 7-9, 1953

Minutes

Minutes of the *1952* meeting of *House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee since 1952 meeting* of House of Delegates approved as recorded.

Special Order

Appointment of Committees: *Credentials*: — Dr. Wm. H. Roeling, New Orleans, Chairman; Drs. C. E. Boyd, Shreveport and Dr. Guy Riche, Jr., Baton Rouge. *President's Report*:—Dr. J. K. Stone, New Orleans, Chairman; Dr. C. M. Horton, Franklin, and Dr. E. H. Lawson, New Orleans. *Resolutions*:—Dr. M. C. Wiginton, Hammond, Chairman; Dr. J. E. Clayton, Norco and Dr. R. E. Gillaspie, New Orleans.

Invitation extended by Dr. George W. Davis, Jr., Superintendent of the *Southeast Louisiana State Hospital in Mandeville*, to members of the State Society to visit the hospital.

Approval of *telegrams* to be sent to *Dr. P. T. Talbot, Secretary-Treasurer Emeritus* and *Dr. Roy B. Harrison*, in re inability to be present.

Roll of *members who died since 1952 meeting* read.

Greetings from Texas by Dr. C. L. Heare, Port Arthur, Texas, *Fraternal Delegate.*

Greetings from American Medical Association, Dr. George F. Lull, *Secretary-Manager* and Mr. Thomas A. Hendricks, *Secretary of the AMA Council on Medical Service.*

Communications

Blue Shield Commission and *Secretary of State* in re *Louisiana Physicians Service, Inc.*—Received and filed.

Fox and Pier, Inc. in re *Group Plan of Disability Insurance* for members of the AMA—Referred to Executive Committee.

Action Taken

Approval of suggestion that a *plaque and resolutions of thanks* be given *Dr. Roy B. Harrison* in appreciation of service rendered through the *State Board of Medical Examiners*; also that *thanks* be expressed to *Drs. Horton, Leckert and Menville* for their service on this Board and that a *plaque* containing their names be presented to the office of the State Board of Medical Examiners.

Approval of Group Professional Health and Accident Insurance offered by Continental Casualty Company and approved by Special Committee of the State Society.

Approval of appointment of special committees from parish societies NOW to work with the Legislative Committee to define *chiropractic* law;

enlist Chambers of Commerce and Better Business Bureau and other people of Louisiana to assist as they see fit; study ways and means of enforcing the present laws in the state.

Disapproval of article appearing in the New Orleans Times-Picayune entitled *NOSE MOST COMMON SPOT FOR COSMETIC SURGERY* and condemning responsible parties; American Medical Association and American Board of Plastic Surgery to be notified of action.

Resolution in re internships approved: WHEREAS, The Report of the Advisory Committee on Internships to the Council on Medical Education and Hospitals of the American Medical Association dated November 15, 1952, and the "Essentials of an Approved Internship" prepared by the Council on Medical Education and Hospitals of the American Medical Association dated November 15, 1952, and revised December 4, 1952, stipulate that approved internships can be conducted only in hospitals in which the educational benefits are considered of paramount importance, and the service benefits to the hospital are secondary; and WHEREAS the Council on Medical Education and Hospitals in its concept is trying to make the internship a fifth year of medical education instead of a year or more of medical practice under supervision; and WHEREAS, only hospitals having a capacity of at least 150 beds, exclusive of bassinets, and a minimum of 5,000 annual admissions would be accepted for approval; and WHEREAS, the establishment and enforcement of these regulations constitute regimentation of the medical profession, and is an encroachment upon the individual rights and privileges of practicing physicians, be it RESOLVED, that the Louisiana State Medical Society instruct its delegates to the American Medical Association to express, on the floor of the House of Delegates at the June 1953 meeting of the American Medical Association, this Society's objection to these essentials, and recommend that the previous action of the House of Delegates of the American Medical Association with regard to the "Essentials of an Approved Internship" be revoked; and be it FURTHER RESOLVED, that copies of these resolutions be sent to each member of the House of Delegates of the American Medical Association, the president and secretary of the American Medical Association, the chairman and members of the Advisory Committee on Internships to the Council on Medical Education and Hospitals of the AMA, to the chairman and members of the Council on Medical Education and Hospitals of the AMA, and to the president of each state medical society throughout the country."

Approval of letter prepared for submission to the president of the AMA by the president of the State Society concerning *internship regulations.*

Disapproval of requirement that a doctor *belong to any group* in order to render service in any capacity to the *State Welfare Department.*

Matters Discussed—No Action Taken

Resolution from Shreveport Society in re *chiropractic law.* (No specific action on resolution; motion approved in re appointment of committees from parish societies).

Chiropractic advertising in Baton Rouge.

Resolution proposed by Erie County Medical Society, of New York, in re *doctor draft.*

Discussion of *Keogh Reed Bill* in re *social security* for physicians.

Suggestion that *Annual Meetings* be held on *Gulf Coast.*

Amendments

Section 1 of Chapter II of By-Laws (placing no limit on time of selection of place and dates for annual sessions) to read: *Annual Sessions*—The Society shall hold an annual session at such time and place as has been fixed by the House of Delegates or the Executive Committee. At this annual session shall be held general, installation and scientific meetings and the annual meeting of the House of Delegates.

Chapter IX of By-Laws to include Committee on Committees as a Standing Committee.

Section 5 of Chapter IX of By-Laws (in re personnel of Committee on Maternal Welfare) to read: *Committee on Maternal Welfare*—The President shall appoint the chairman of the Committee on Maternal Welfare and the chairman shall formulate his own committee and submit names to the President for consideration. Thirteen members shall constitute the Committee; at least five of whom reside in the city or locality in which the chairman resides and these five given power to act on important matters if the other members are unable to attend meetings of the Committee. The Committee shall consider all matters pertaining to maternal and child welfare which concern the public, members of this Society and the state health department. They shall cooperate with various agencies concerned with this work and determine policies for the benefit of the public and of the medical profession.

Reports without Recommendations

Following reports accepted as presented: Secretary-Treasurer; Chairman of Council; Councilors of First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth Congressional Districts; Committees: Advisory to Selective Service, Aid to Indigent Members, Arrangements - 1953 Annual Meeting, Blood Banks, Budget and Finance, Child Health, Committees, Congressional Matters, Diabetes, Domicile, Grievances, Hospitals, Industrial Health, Journal, Lectures for Colored Physicians, Medical Defense, Medical Education, Medical Testimony, Neuropsychiatric Service at Charity Hospitals, Professional Health and Accident Insurance, Public Health of the State of Louisiana, Public Policy and Legislation, Scientific Work, State Hospital Policies, Woman's Auxiliary; Council on Medical Service and

Public Relations; Louisiana Physicians Service, Inc.

Reports with Recommendations

President: Referred to Committee on President's Report and report of this Committee, with following suggestions concerning recommendations, approved: 1. All Special Committees be continued: The committee suggests that this matter be taken under advisement by the Committee on Committees, which committee should be changed from a special to a standing committee. 2. The time and place of meeting of the State Society be scheduled three years in advance: The committee is heartily in accord with this proposal and suggests that the House of Delegates change the By-Laws so that it may be put into effect as soon as possible. 3. The name of the Grievance Committee be changed to comply with recommendations of the American Medical Association: The committee feels that this recommendation is very desirable because of the implications that the word "grievance" may give. It is suggested that the name be changed to Committee on Mediation as proposed by the AMA. 4. No corporation affecting the moral or financial responsibility of our members be organized unless it be controlled, as is the State Journal, by the Society: It is recommended that the word "moral" be deleted, as it could possibly be a stumbling block at some future time.

Committee on American Medical Education Foundation:—1. Suggestions in this report be referred to the new committee to be appointed for 1953-54—Approved.

Committee on Cancer:1. Two thousand dollars to be earmarked for development of Louisiana State Medical Society Cancer Commission—Approved.

Committee on Chronic Diseases:—1. Some program for nursing of the chronically ill be attempted —Referred to the Committee on Liaison with the Louisiana State Nurses' Association.

Committee on History of the Louisiana State Medical Society:—1. Approval of notarial act creating a Trust Fund for the completion of the History of Medicine in Louisiana and the History of the Louisiana State Medical Society—Approved. 2. Change name of Committee on History of the Louisiana State Medical Society to the Committee on the History of Medicine in Louisiana, consisting of the members of the Society mentioned in the notarial act; the editorial committee appointed by this committee will appear in its detailed form in future publications under authority of the above mentioned committee—Approved. 3. The Society continue to record its history—Approved. Motion was also made and carried that a letter of thanks be sent Dr. Matas for his interest in this work.

Committee on Liaison with Louisiana State Nurses' Association:—1. Continuation of Committee with suggestion that sub-committees be appointed throughout the state so that the individual problems of the various communities may be taken care of more efficiency—Approved.

Committee on Maternal Welfare:—1. Section 5 of Chapter IX of the By-Laws be amended to allow for appointment of the Committee on Maternal Welfare, as follows: The President designate the chairman and the chairman formulate his own committee and submit names to the President for consideration. Thirteen members to constitute the Committee; at least five of whom reside in the city or locality in which the chairman resides and these five given power to act on important matters if the other members are unable to attend meetings of the Committee—Approved.

Committee on Medical Indigency:—1. A meeting with Governor Kennon, his hospital administration, and a selected group of hospital board members, both lay and medical, to solve the great problem of who is a medical indigent—Referred to the Executive Committee.

Committee on National Emergency Medical Service:—1. Chairman of the Committee on National Emergency Medical Service be appointed from the Baton Rouge area so that he can work with the State Director of Civil Defense whose office is in Baton Rouge—Approved. 2. The Louisiana State Medical Society ask that the parish medical societies cooperate in the Civil Defense Program—Approved. 3. The State Society recommend to local committees that the standard pressure-type dressings be used in burns in Civil Defense emergencies —Approved. 4. Type O blood be used for transfusions in Civil Defense emergencies—Approved.

Committee on Resolutions:—1. Copy of these resolutions be sent to each person and organization mentioned and also published in The Journal of the Louisiana State Medical Society—Approved.

Committee on Rural and Urban Health:—Following recommendations referred to the Executive Committee, with authority to take necessary action: 1. Louisiana State Medical Society be urged to take a more active interest in the Louisiana Health Council. 2. Small amount of money allocated to this Committee for expenses. 3. Committee for 1953-54 be composed of members who are directly interested in rural health.

Report of Louisiana State Board of Medical Examiners

Dr. Edwin H. Lawson and Dr. Morgan Lyons, with Dr. Sam Hobson and Dr. Edwin L. Zander, as alternates, to be recommended to the governor for appointment to the Board of Medical Examiners in re Drs. Harrison and Horton. Committee to be appointed from the House of Delegates, to draw up resolutions of thanks and appreciation for service rendered the Board by Dr. Harrison and that a plaque be presented to him in recognition of this service. Also that thanks be expressed to Drs. Horton, Leckert and Menville for their service on this Board and that a plaque containing

their names be presented to the office of the State Board of Medical Examiners.

Election of Officers, Delegate and Alternate to AMA and Committees

President-elect—Dr. Walter Moss, Lake Charles.

First Vice-President—Dr. Cuthbert J. Brown, New Orleans.

Second Vice-President—Dr. Kernan Irwin, Baton Rouge.

Third Vice-President—Dr. M. M. Hattaway, New Orleans.

Chairman of House of Delegates—Dr. W. Robyn Hardy, New Orleans.

Vice-Chairman of House of Delegates—Dr. Ralph H. Riggs, Shreveport.

Councilor, Third District—Dr. Guy R. Jones, Lockport.

Councilor, Sixth District—Dr. Arthur D. Long, Baton Rouge.

Councilor, Seventh District—Dr. J. W. Faulk, Crowley.

Councilor, Eighth District—Dr. H. H. Hardy, Alexandria.

Delegate to AMA (1954 and 1955)—Dr. J. Q. Graves, Monroe.

Alternate to Delegate to AMA (1954 and 1955)—Dr. A. A. Herold, Shreveport.

Committee on Journal—Dr. E. L. Leckert and Dr. Edwin H. Lawson; both of New Orleans.

Committee on Medical Defense—Dr. W. A. Ellender, Houma.

Committee on Public Policy and Legislation—Dr. Henry W. Jolly, Jr., Baton Rouge, Chairman; Dr. E. L. Zander, New Orleans; Dr. J. E. Clayton, Norco; Dr. Leo Kerne, Thibodaux; Dr. Clarence E. Boyd, Shreveport; Dr. Haydn Cutler, Monroe; Dr. W. A. K. Seale, Sulphur; Dr. M. B. Pearce, Alexandria; Dr. P. H. Jones, New Orleans, President of LSMS and Dr. C. Grenes Cole, New Orleans, Secretary-Treasurer of LSMS, to serve as ex-officio members.

Committee on Scientific Work—Dr. W. H. Gillentine, New Orleans; Dr. M. D. Hargrove, Shreveport; Dr. C. Grenes Cole, Secretary-Treasurer of LSMS to serve as chairman.

1954 Meeting

Invitation to hold the 1954 meeting in Lake Charles was referred to the Executive Committee.

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REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION

June, 1953

President and Executive Committee
Louisiana State Medical Society

Gentlemen:

The ROUNDUP STORY ON THE HOUSE OF DELEGATES OF THE 102nd ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION is so complete that your delegates are submitting it below as their report.

ROUNDUP STORY

The House of Delegates of the American Medical Association, in session at the Waldorf-Astoria Hotel during the 102nd Annual Meeting of the A.M.A. in New York City, took important policy actions on veterans' medical care, medical ethics, osteopathy, intern training and a wide variety of subjects ranging from medical education to public relations.

The House also named Dr. Walter B. Martin of Norfolk, Virginia, as president-elect of the American Medical Association for the coming year. Dr. Martin will become president at the June, 1954 meeting in San Francisco, succeeding Dr. Edward J. McCormick of Toledo, Ohio, who took office at a special inaugural session of the House of Delegates in the Hotel Commodore during the New York meeting.

The New York meeting was the largest ever held in the history of the American Medical Association, with the final figures on total attendance expected to reach or surpass 40,000, including nearly 18,000 physicians.

Giving unanimous approval to a recommendation from its Reference Committee on Insurance and Medical Service, submitted as a substitute for eight different resolutions concerning the treatment of non-service-connected disabilities by the Veterans Administration, the House adopted the policy that such treatment should be discontinued except in cases involving tuberculosis or psychiatric or neurological disorders.

In taking this action, the House reaffirmed and adopted the following recommendation originally presented at the Denver Meeting last December by the Special Committee on Federal Medical Services:

"Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories:

"(a) Veterans with peacetime or wartime service whose disabilities or diseases are service-incurred or aggravated, and

"(b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service connected origin, who are unable to defray the expenses of necessary hospitalization.

"Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs."

The reference committee report adopted by the House expressed complete accord with the present program of hospital and medical care for veterans

with service-connected disabilities, and also included this statement:

"It is the belief of your committee that the medical profession must concern itself, not with the numbers of 'Chiselers' in Veterans Administration hospitals nor with the efficacy of the Veterans Administration in the administration of enabling legislation, but rather with the broad question of whether such legislation is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions and whether the ever-increasing cost of such a program is a proper burden to impose on the tax-payers of the country. A consideration of this problem must of course be predicated upon a concern for the health of the entire population and not just a particular segment."

Eleven resolutions dealing with publicity regarding unethical conduct of physicians were brought before the House as a result of recent newspaper and magazine articles reporting statements attributed to an official spokesman of an allied medical organization. The House adopted a committee report which recommended no action on the eleven resolutions but which reaffirmed the supremacy of the A.M.A. code of ethics and urged that the Judicial Council study suggested revisions concerning methods of billing.

"The Principles of Medical Ethics as formulated, interpreted and applied by the American Medical Association must be considered the only fundamental and controlling application of ethics for the entire profession," the reference committee report said. "Any statement relating to ethical matters by other organizations within the general profession of medicine advances views of only a particular group and is without official sanction of the entire profession as represented by the American Medical Association."

Condemning generalized statements regarding the ethics of physicians, the report went on to say:

"Your reference committee believes that the harm done to the public and to the profession by the current articles which lower the confidence patients have in their doctors cannot be objectively evaluated. This highlights the fact that, when individuals or groups without official status in the American Medical Association utter or publish ill-considered statements, the result too often is that the confidence of the public in the medical profession is placed in jeopardy.

"The reference committee believes that the members of the House of Delegates have demonstrated their devotion over the years to the principles of American democracy. This devotion includes the right of free speech. With this, the Committee agrees unqualifiedly.

"Broad generalizations, ill-advised and poorly prepared statements that often fail to convey the intended meaning are most unfortunate and are to be deplored. Destructive critical comments serve no useful purpose. Your committee has the utmost confidence that the great majority of our members are entirely capable of avoiding these pitfalls without additional advice from this committee."

The report also urged that the American Medical Association continue to inform its members and the public of its stand on matters pertaining to abuses and evils in the practice of medicine.

Most controversial issue brought before the House at the New York meeting proved to be the question of immediate or deferred action on the report of the Committee for the Study of Relations Between Osteopathy and Medicine. The House, after two hours of vigorous, spirited debate, adopted the majority report of the Reference Committee on Miscellaneous Business, thereby postponing action until the June 1954, meeting and allowing further study by the delegates and the state associations.

The recommendations of the Committee for the Study of Relations Between Osteopathy and Medicine were as follows:

"1. That the House of Delegates declare that so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of 'Cultist' healing.

"2. That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association which are to improve the health and medical care of the American people, it is the policy of the Association to encourage improvement in the undergraduate and postgraduate education of doctors of osteopathy.

"3. That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states and that the state associations be requested to accept this responsibility.

"4. That the Committee for the Study of Relations Between Osteopathy and Medicine or a similar committee be established as a continuing body."

A minority report of the reference committee urged approval and adoption of those recommendations at the New York meeting. The majority report, which ultimately won out, included the following recommendations by the Board of Trustees:

"Because of the length of the report and the controversial nature of the subject, the Board feels that the House should have adequate time for its study and that the state associations should have opportunity to express their opinions.

"Therefore, it is recommended that the Committee be continued but that action on the report be deferred until the June, 1954, session. It is suggested that at that time the House be prepared to answer the following questions:

"1. Should modern osteopathy be classified as 'Cultist' healing?

"2. Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education, should doctors of medicine teach in osteopathic schools?

"3. Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?"

Five resolutions came before the House with regard to the Essentials of an Approved Internship, which were adopted at the December, 1952, meeting. The Reference Committee on Medical Education and Hospitals recommended a substitute resolution which was adopted by the House after considerable discussion. The action abolishes the rule whereby approval may be withdrawn from an internship program which for two consecutive years fails to obtain at least two-thirds of its slated complement of interns. The resolution also calls for further study of the Essentials by a committee appointed by the Speaker of the House, at least half of whom are doctors in private practice not connected with medical schools or affiliated hospitals.

Also adopted was the supplementary Report of the Board of Trustees on the Problem of Accrediting Nursing Schools. The Board of Trustees having conferred with the Commission for the Improvement of the Care of the Patient, the Director of the Accreditation Program of the National League for Nursing Education, Inc., and a representative of the American Hospital Association, agreed to recommend an eight point program. Your Reference Committee would like to cite particularly Point 6 dealing with the recommendation to reduce the present three year program for diploma training courses to two years; and Point 7 recommending selected cases for advancement from trained practical nurse status to hospital diploma courses, and from hospital diploma status to collegiate degree courses without loss of time; and Point 8 in which the committee recommends that the trained practical nurse program be a joint effort of doctors, hospital administrators and nurses.

Among the many other actions taken, the House reaffirmed its endorsement of the principles embodied in Senate Joint Resolution No. 1 concerning international treaties or agreements which interfere with domestic laws or rights, and it approved a resolution deploring a derogatory article about the American Medical Association which appeared recently in the Home Life Magazine. The latter resolution was referred to the Board of Trustees for implementation.

Highlights of the opening day session of the House were addresses by Dr. Louis H. Bauer, who delivered his term-end report as retiring president; Dr. Edward J. McCormick, who spoke on that day as president-elect, and Mrs. Oveta Culp Hobby, United States Secretary of Health, Education and Welfare, and selection of the winner of the 1953 Distinguished Service Award.

Dr. Bauer, referring to charges of unethical practices among some doctors, declared that all members of the medical profession "should not be tarred with the same stick."

Dr. McCormick outlined a nine-point program for further improvement in the nation's medical care and expressed the hope that "their further development will solve many of medicine's problems and eliminate much of the criticism to which we are subjected."

Mrs. Hobby told the delegates that the present administration in Washington is looking with confidence to the nation's physicians for leadership in meeting the challenge of modern medical care problems.

The 1953 distinguished Service Award was voted to Dr. Alfred Blalock of Baltimore for his outstanding work in vascular surgery and his part in the development of the so-called "blue-baby" operation. Dr. Blalock, chief surgeon at Johns Hopkins Hospital and professor of surgery at Johns Hopkins University School of Medicine, received the award during ceremonies preceding the presidential inauguration Thursday night, June 2.

In addition to the selection of Dr. Martin as president-elect, the House also elected Dr. Carl H. Gellenthien of Valmora, New Mexico, to the office of vice-president. He succeeds Dr. Leo F. Schiff of Plattsburgh, New York.

Re-elected to office were:

Dr. George F. Lull, Chicago, secretary and general manager; Dr. J. J. Moore, Chicago, treasurer; Dr. James R. Reuling, Bayside, New York, speaker of the House of Delegates; Dr. E. Vincent Askey, Los Angeles, vice speaker of the House; Dr. Edwin S. Hamilton, Kankakee, Illinois, and Dr. Cunnar Gundersen, LaCrosse, Wisconsin, as member of the Board of Trustees.

The House elected Dr. Julian P. Price of Florence, South Carolina, to fill Dr. Martin's unexpired term on the Board of Trustees.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SEVENTEENTH ANNUAL MEETING OF THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Will be held March 8-11, 1954, headquarters at the Municipal Auditorium.

The following officers and members of the Executive Committee have been elected for this year:

Dr. Andrew V. Friedrichs, President; Dr. Woodard D. Beacham, President-elect; Dr. Howard Mahorner, First Vice-President; Dr. Ambrose H. Storck, Second Vice-President; Dr. Theodore L. L. Soniat, Third Vice-President; Dr. Maurice E. St. Martin, Secretary; Dr. Jules Myron Davidson, Treasurer; Dr. Donavan C. Browne, Director of Program; Dr. Homer J. Dupuy; Assistant Director of Program; Dr. Eugene H. Countiss, Assistant Director of Program.

Executive Committee: Dr. Cuthbert J. Brown; Dr. W. P. Gardiner; Dr. Charles B. Odom; Dr. H. Ashton Thomas; Dr. Charles R. Walters.

PAN-PACIFIC SURGICAL ASSOCIATION

Sixth Congress
Honolulu, Hawaii
October 7-18, 1954

Doctors are urged to make arrangements as soon as possible to attend the Sixth Pan-Pacific Surgical Congress to be held in Honolulu, Hawaii, October 7-18, 1954.

An outstanding program, including sessions in all divisions of surgery and related fields, promises to be of interest to all doctors.

The Association office has been appointed as travel agent for those attending the Congress and it is important that all hotel and travel reservations be made through the Honolulu headquarters of the Pan-Pacific Surgical Association.

For further information, please write to F. J. Pinkerton, M. D., Director General, PAN-PACIFIC SURGICAL ASSOCIATION, Suite 7, Young Hotel Building, Honolulu, Hawaii.

NEWS ITEM

At the recent meeting of the Louisiana-Mississippi Otolaryngological and Ophthalmological Society held in Biloxi, Mississippi, Dr. Ralph H. Riggs, of Shreveport, was elected president of the organization and Dr. W. Griffin Jones, of Shreveport, was elected councilor.

AMA PUBLICATIONS

If you desire, you may substitute some other A.M.A. publication for the Journal of the American Medical Association. They are American Journal of Diseases of Children, Archives of Neurology and Psychiatry, Archives of Dermatology and Syphilology, Archives of Surgery, Archives of Ophthalmology, Archives of Otolaryngology, Archives of Pathology, Archives of Internal Medicine, Archives of Industrial Hygiene and Occupational Medicine. If changes are to be specified, let State Headquarters have the information at the time your Parish reports your dues.

12 PER CENT OF DOCTOR'S TIME GOES TO CHARITY PATIENTS

The average U. S. physician gives seven hours a week—12 per cent of his working hours—to charity patients. The dollar value of the charity work he does in a single year is more than $3,000.

These figures are revealed in the April issue of Medical Economics, national business magazine for doctors. The magazine is publishing the results of a nationwide survey is made recently among its 134,000 M. D.-readers.

NEW INFLUENZA VACCINE OFFERS PROMISE OF BETTER IMMUNIZATION

A new type of influenza vaccine that will at least double the period of immunity and may make it possible to offer protection against more strains of influenza virus was reported in the April 4 Journal of the American Medical Association.

Preliminary studies have shown that the vaccine, emulsified in light mineral oil, gives immunity for at least two years, compared to the one year immunity afforded by presently used vaccines which are prepared in a water base, according to Dr. Jonas E. Salk, Pittsburgh. Dr. Salk is associated with the virus research laboratory, department of bacteriology, University of Pittsburgh School of Medicine.

"It appears that emulsification with light mineral oil may provide, in part at least, the means

for resolving the problems of prolonging vaccine effectiveness and increasing the immunologic coverage to include a sufficient number of strains to cover the entire spectrum for each virus type," Dr. Salk wrote.

PROMISING TREATMENT OF AMEBIC DYSENTERY REPORTED

Promising results in the treatment of amebic dysentery were reported in two articles in the March 28 Journal of the American Medical Association.

One study, involving 538 patients in a Korean military hospital, disclosed that acute amebic dysentery responded best to therapy consisting of terramycin given alone or in combination with such standard amebacides as emetine, carbarsone, chiniofon, chloroquine, or bismuth glycolylarsanilate and chloroquine. This report also said that the disease gave excellent initial response and low relapse rate to treatment with the combination of aureomycin and chloroquine diphosphate.

The second article was based on a study of 264 persons in Venezuela suffering from various forms of amebic dysentery. Best results in this study were obtained by use of the combination of bismuth is a drug which has proved beneficial in the treatment of malaria.

In the Korean study, patients were supervised for at least six weeks. Various forms of treatment were instituted, including the administration of known amebacides and antibiotics, alone and in combinations.

Combinations of standard amebacides proved to be much more effective than use of a single amebacide, the article pointed out. Terramycin proved to be the most effective of the antibiotics, and, given in combination with standard amebacides, gave the best results.

DECLINE OF TYPHOID

A generation ago, typhoid was one of the most prevalent infectious diseases in this country. Epidemics appeared annually, and the mortality was high. Today the disease has almost disappeared from large cities and its incidence in rural areas is decreasing rapidly. This reduction in incidence, which occurred before the antibiotic and chemotherapeutic era, has not been due to a reduction in the virulence of the organism or to the development of a specific therapy for the disease. It represents a triumph of epidemiological control. Epidemics caused by contamination of community water or milk supplies have been controlled by proper sewage disposal, routine boiling or chlorination of drinking water, and pasteurization of milk. Epidemics due to carriers, now the chief source of infection, are being controlled by detection and removal of carriers from food-handling jobs and elimination of the carrier state when this is possible.

POLIO PROTECTION AFFORDED BY GAMMA GLOBULIN, REPORT SAYS

Evaluation of the use of gamma globulin for immunization against poliomyelitis has disclosed that passive and temporary immunity to the disease may be obtained through its use, it was reported in the April 11 Journal of the American Medical Association.

Analysis of the use of gamma globulin on approximately 55,000 children in Texas, Iowa and Nebraska during the 1951-1952 epidemic has shown that it gives "highly significant protection against paralytic poliomyelitis," according to Dr. William McD. Hammon, Pittsburgh; Lewis L. Coriell, Camden, N. J.; Paul F. Wehrle, Pittsburgh, and Joseph Stokes, Jr., Philadelphia. Gamma globulin, a blood fraction, is now employed to prevent or modify measles and infectious hepatitis, a liver disease.

The children involved in the tests ranged in age from one to 10 years. Dosage of gamma globulin administered was based on body weight. Half of the children were given injections containing the blood fraction, while the other half received injections of an inert gelatin solution. The doctors did not know until the study was completed which preparation was administered to each child. The children were studied for 14 weeks after being given the injections.

A total of 104 cases of paralytic polio occurred in the group of children studied; 31 cases occurred in the group which received gamma globulin, and 73 in the group which received the gelatin solution, the doctors reported.

"During the first week, the protection against paralytic disease was not significant, 12 or 42.9 per cent of 28 cases occurring in the gamma globulin group," they stated.

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

Woman's Auxiliary to the Louisiana State Medical Society held its annual meeting in New Orleans, May 7-9, Mrs. Thomas E. Strain, Shreveport, presiding. Speakers for the first session of the meeting were the Rev. William J. Harty, S. J., pastor of Holy Name of Jesus Church. Mrs. Edwin R. Guidry, president of Orleans Parish Auxiliary welcomed the visitors. Greetings were extended by officials of the national, state and Orleans Parish Medical societies, including Dr. William E. Barker, Plaquemine, LSMS president; Dr. Philip H. Jones, New Orleans, LSMS president-elect; Dr. Sam Hobson, president of Orleans Parish Medical Society; Dr. George F. Lull, Chicago, AMA representative; Dr. Cuthbert J. Brown, chairman of LSMS convention, and Dr. C. Grenes Cole, New Orleans, LSMS, secretary. Other speakers were: Dr. Roy B. Harrison, Dr. Marion D. Hargrove and

Dr. Clarence B. Erickson, members of the auxiliary's advisory board; Mrs. P. A. Donaldson and Mrs. Arthur A. Herold.

Mrs. Edwin A. Socola, New Orleans, took office as president at the second session. Speakers for the program included Mrs. Ralph Eusden, president of Women's Auxiliary of the American Medical Association, and Mrs. R. F. Stover, president of the Women's Auxiliary of the Southern Medical Association.

A Louisiana Purchase pageant and tea was held Friday afternoon at the Orleans Club. The pageant was written and produced by Mrs. George D. Feldner, New Orleans. Over 150 doctors' wives, doctors and their families participated. Mrs. Daniel J. Murphy was co-chairman for the pageant. Mrs. Joseph S. D'Antoni, was in charge of the tea. Mrs. Max M. Green, was tea-girl chairman.

Saturday's activities began with an instruction class conducted by Mrs. John A. Dunn for the newly elected officers and committee chairman. A luncheon honoring Mrs. Socola and the distinguished speakers was held at the New Orleans Country Club. Mrs. H. Theodore Simon was in charge of arrangements, Mrs. Eugene H. Countiss, Toastmistress.

Officers of the Women's Auxiliary to the Louisiana State Medical Society for 1953-54 are as follows:

Mrs. Edwin A. Socola, New Orleans, President; Mrs. Marquis C. Wiginton, Hammond, President-Elect; Mrs. J. Boring Montgomery, Lafayette, 1st Vice-President; Mrs. James J. LaNasa, Baton Rouge, 2nd Vice-President; Mrs. W. B. Worley, Shreveport, 3rd Vice-President; Mrs. James W. Schonlau, Monroe, 4th Vice-President; Mrs. Walter O. Moss, Lake Charles, Recording Secretary; Mrs. Daniel J. Murphy, New Orleans, Treasurer; Mrs. Philip P. LeBruyere, Marrero, Corresponding Secretary; Mrs. Monte Meyer, New Orleans, Parliamentarian; Mrs. Arthur A. Herold, Shreveport, Consultant and Advisor.

Chairmen of Committees:

Mrs. C. Grenes Cole, New Orleans, Archives; Mrs. D. B. Barber, Pinevxille, American Medical Education Foundation; Mrs. George Taquino, New Orleans, Bulletin; Mrs. Louis Leggio, New Orleans, Cancer Control; Mrs. Jules Myron Davidson, New Orleans, Civil Defense; Mrs. Joseph E. Heard, Shreveport, Commemoration Fund; Mrs. Pierre A. Donaldson, Doctor's Day; Mrs. Edwin Guidry, New Orleans, Editor of Publications; Mrs. John Tanner, Gretna, Essay Contest; Mrs. Daniel Silverman, New Orleans, Finance; Mrs. John A. Dunn, New Orleans, Historian; Mrs. Arthur D. Long, Baton Rouge, Legislation; Mrs. W. A. K. Seale, Sulphur, Health and Safety; Mrs. Ralph Talbot, Monroe, Nurse Recruitment; Mrs. Marquis C. Wiginton, Hammond, Organization; Mrs. George M. Haik, New Orleans, Press and Publicity; Mrs. H. Theodore Simon, New Orleans, Printing; Mrs. Rhodes Spedale, Plaquemine, Program; Mrs. Roy Carl Young, Covington, Public Relations; Mrs. Aynaud Hebert, New Orleans, Red Cross; Mrs. Thomas S. Strain, Shreveport, Revisions of By-Laws; Mrs. DeWitt Milam, Monroe, Romance and Research of Medicine; Mrs. Jacob O. Hoth, Baton Rouge, Today's Health; Mrs. George D. Feldner, New Orleans, Year Book.

Councilors: Mrs. Robert Rougelot, New Orleans; Mrs. Albert Habeeb, Metairie; Mrs. Thomas A. Kimbrough, Lafayette; Mrs. Paul Abramson, Shreveport; Mrs. A. Scott Hamilton, Monroe; Mrs. Charles S. Prosser, Baton Rouge; Mrs. F. Creighton Shute, Opelousas; Mrs. O. B. Owens, Alexandria.

BOOK REVIEWS

Surgery and the Endocrine System; by James D. Hardy, M. D. Philadelphia, W. B. Saunders, 1952. Pp. 153, illus. Price $5.00.

In approximately 150 pages Dr. Hardy has given an up-to-date résumé of recent advances in endocrine physiology. He further explains how these advances are applicable to the surgical patient. There are some interesting questions posed as a result of new studies. For instance, is fever a component of the alarm response? What is the relationship between thyroid activity and adrenocortical activity? Can the excretion of urinary steroids be correlated with the clinical course of the patient?

Throughout there are tables which usually summarize pertinent points in the text. There are separate chapters on thyroid, parathyroid, pancreas, adrenal glands, pituitary, thymus, and gonads.

This little monograph is an excellent summary of recent endocrinological research and its application to the surgical patient.

PAUL TRAUTMAN, M. D.

PUBLICATIONS RECEIVED

Doubleday & Co., Inc.: Garden City, N. Y.: Biography of an Idea; The Story of Mutual Fire and Casualty Insurance, by John Bainbridge.

Grune & Stratton, Inc., N. Y.: Psychology of Physical Illness, edited by Leopold Bellak, M. D.

Health Education Council, N. Y.: The Epidemiology of Health, by Iago Galdston, M. D.; Paul B. Hoeber, Inc., N. Y.: Therapeutics in Internal Medicine, by Eighty-Four Authorities, edited by Franklin A. Kyser, M. D. (2nd Edit.).